

Literature Cited

- Abrams, M.D. 1992. Fire and the development of oak forests. *BioScience* 42(5):346–353.
- Abrams, M.D. 1998. The red maple paradox. *BioScience* 48:355–364.
- Abrams, M.D. 2003. Where has all the white oak gone? *BioScience* 53:927–934.
- Abrams, M.D. 2005. Prescribing fire in eastern oak forests: Is time running out? *Northern Journal of Applied Forestry* 22:190–196.
- Abrams, M.D., and D.I. Dickmann. 1981. Early revegetation of clear-cut jack pine sites in northern Lower Michigan. *Canadian Journal of Botany* 60:946–954.
- Abrams, M.D., D.G. Sprugel, and D.I. Dickmann. 1985. Multiple successional pathways in recently disturbed jack pine sites in Michigan. *Forest Ecology and Management* 10:31–48.
- Albert, D.A. 2000. *Borne of the wind: An introduction to the ecology of Michigan sand dunes*. Michigan State University Extension, Michigan Natural Features Inventory, Lansing, Michigan. 63 pp.
- Albert, D. 2003. *Between land and lake: Michigan's Great Lakes coastal wetlands*. Michigan State University Extension, Michigan Natural Features Inventory, Extension Bulletin E-2902, East Lansing, Michigan. 96 pp.
- Albert, D., and P. Comer. 2008. *Atlas of early Michigan's forests, grasslands, and wetlands: An interpretation of the 1816–1856 General Land Office surveys*. Michigan State University Press, Michigan Natural Features Inventory, East Lansing, Michigan. 107 pp.
- Albert, D., P. Comer, D. Cuthrell, D. Hyde, W. MacKinnon, M. Penskar, and M. Rabe. 1997. *Great Lakes bedrock shores of Michigan*. Michigan Natural Features Inventory, Lansing, Michigan. 58 pp.
- Alexander, D.G. 1976. Ecological aspects of the temporary annual pool fauna. Pages 32–36 in S. Jain, editor. *Vernal pools, their ecology and conservation*. University of California Davis, Institute of Ecology, Publication No. 9, Davis, California.
- Alverson, W.S., and D.M. Waller. 1997. Deer populations and the widespread failure of hemlock regeneration in northern forests. Pages 290–297 in W. McShea and J. Rappole, editors. *The science of overabundance: Deer ecology and population management*. Smithsonian Institution Press, Washington, D.C.
- Alverson, W.S., D.M. Waller, and S.L. Solheim. 1988. Forests too deer: Edge effects in northern Wisconsin. *Conservation Biology* 2:348–358.
- Amon, J.P., C.A. Thompson, Q.J. Carpenter, and J. Miner. 2002. Temperate zone fens of the glaciated Midwestern USA. *Wetlands* 22(2):301–317.
- Amoros, C., and G. Bornette. 2002. Connectivity and complexity in waterbodies of riverine floodplains. 2002. *Freshwater Biology* 47:761–776.
- Anderson, C., L. Ayers, T. Bergeson, and W.A. Smith. 2008. *Biodiversity in selected natural communities related to global climate change*. Wisconsin Department of Natural Resources, Bureau of Endangered Resources, Final Report to Wisconsin Focus on Energy, Environmental Research Program, Madison, Wisconsin.
- Anderson, O. 1954. *The phytosociology of dry lime prairies in Wisconsin*. Ph.D. thesis, University of Wisconsin-Madison, Madison.
- Anderson, P., and B. Palik. 2011. *Regional examples of silvicultural adaptation strategies: Western Great Lakes mixed-pine forest ecosystem*. U.S. Forest Service, Climate Change Resource Center. Available online at www.fs.usda.gov/ccrc/topics/silviculture/western-great-lakes.
- Anderson, R.C., and M.L. Bowles. 1999. Deep-soil savannas and barrens of the Midwestern United States. Pages 155–170 in R.C. Anderson, J.S. Fralish, and J.M. Baskin, editors. *Savannas, barrens, and rock outcrop communities of North America*. Cambridge University Press, Cambridge, U.K. 480 pp.
- Anderson, R.C., J.S. Fralish, and J.M. Baskin. 1999. *Savannas, barrens, and rock outcrop plant communities of North America*. Cambridge University Press, New York.
- Angermeier, P.L., and I. J. Schlosser. 1995. Conserving aquatic diversity: Beyond species and populations. *American Fisheries Society Symposium* 17:402–414.
- Anich, N.M. 2014. Ground foraging by typically arboreal passerines during the cold spring of 2013. *The Passenger Pigeon* 76(1):89–95.
- Anich, N.M., M. Worland, and K.J. Martin. 2013. Habitat use by spruce grouse in northern Wisconsin. *The Wildlife Society Bulletin* 37(4):766–777.
- Augustine, D.J., and D. deCalesta. 2003. Defining deer overabundance and threats to forest communities: from individual plants to landscape structure. *Ecoscience* 10:472–486.
- Baker, M.E., and B.V. Barnes. 1998. Landscape ecosystem diversity of river floodplains in northwest Lower Michigan, U.S.A. *Canadian Journal of Forest Research* 28:1405–1418.
- Barnes, B.V., and W.H. Wagner Jr. 2004. *Michigan trees: a guide to the trees of the Great Lakes region*. The University of Michigan Press, Ann Arbor.
- Barnes, W.J. 1978. The distribution of floodplain herbs as influenced by annual flood elevation. *Wisconsin Academy of Sciences, Arts and Letters* 66:254–266.
- Bayley, P.B. 1995. Understanding large river-floodplain ecosystems. *BioScience* 45:153–158.
- Bedford, B.L., and K.S. Godwin. 2003. Fens of the United States: Distribution, characteristics, and scientific connections versus legal isolation. *Wetlands* 23(3):608–629.
- Belk, D. 1998. Global status and trends in ephemeral pool invertebrate conservation: Implications for California fairy shrimp. Pages 147–150 in C.W. Witham, E.T. Bauder, D. Belk, W.R. Ferren, Jr., and R. Ornduff, editors. *Ecology, conservation, and management of vernal pool ecosystems: Proceedings from a 1996 conference*. California Native Plant Society, Sacramento, California.
- Bennett, J.P., T.A. Cochrane, T.L. Eddy, N.A. Harriman, R.B. Kahl, D.W. White, L.M. White, and L.J. Yahr. 2008. *Provisional vascular plant and lichen checklists of Red Banks Alvar, Brown County, Wisconsin*. Botanical Club of Wisconsin report to Wisconsin Department of Natural Resources, Bureau of Endangered Resources, Madison.
- Berthal, T.W., D.E. Winston, J. Kline, and M. Linton. 2014. *Accuracy assessment of ephemeral pond wetlands mapping in southeastern Wisconsin: Wisconsin Ephemeral Ponds Project (WEPP)*. Wisconsin Department of Natural Resources, Final Report to USEPA, Region V Wetland Grant No. CD 00E78201, Madison. 28 pp.
- Best, J.A. 2015. *Restoration of headwater and coastal fens in the Lake Superior basin of Upper Michigan*. Ph.D. Dissertation, Michigan Technological University, Houghton, Michigan.
- Bielefeldt, J., M.J. Mossman, E. Epstein, and B. Bubbs. 2003. New distributional records for summer birds in southern Wisconsin conifer swamps. *Passenger Pigeon* 65(4):213–232. (Note: Includes descriptive material on southern Wisconsin tamarack forests.)
- Bohlen, P.J., P.M. Groffman, T.J. Fahey, M.C. Fisk, E. Suarez, D.M. Pelletier, and R.T. Fahey. 2004. Earthworm invasion of forest ecosystems: Ecosystem consequences of exotic earthworm invasion of north temperate forests. *Ecosystems* 7(1):1–12.
- Borgerding, E.A., G.A. Bartelt, and W.M. McCown. 1995. *The future of pine barrens in northwestern Wisconsin: A workshop summary*. Wisconsin Department of Natural Resources, PUBL-RS-913-94, Madison. 105 pp.
- Bowles, M.L., K.A. Jacobs, and J.L. Mengler. 2007. Long-term changes in an oak forest's woody understory and herb layer with repeated burning. *Journal of the Torrey Botanical Society* 134(2):223–237.
- Bowles, M.L., and J.L. McBride. 1998. Vegetation composition, structure, and chronological change in a decadent midwestern North American oak savanna. *Natural Areas Journal* 18:14–27.
- Brawn, J.D. 2006. Effects of restoring oak savannas on bird com-

- munities and populations. *Conservation Biology* 20(2):460–469.
- Bray, J.R. 1958. The distribution of savanna species in relation to light intensity. *Canadian Journal of Botany* 36:671–681.
- Bray, J.R. 1960. The composition of savanna vegetation in Wisconsin. *Ecology* 41(4):721–732.
- Braun, E.L. 1950. *The deciduous forests of eastern North America*. Blakiston Publishing Company, Philadelphia.
- Broch, E.S. 1965. Mechanisms of adaptation of the fairy shrimp *Chirocephalus bundyi* Forbes to the temporary pond. *Cornell University Agricultural Experiment Station Memoirs* 392:1–48.
- Bronny, C. 1989. One-two punch: Grazing history and recovery potential of oak savannas. *Restoration and Management Notes* 7:73–76.
- Brown, R.T., and J.T. Curtis. 1952. The upland conifer-hardwood forests of northern Wisconsin. *Ecological Monographs* 22:217–234.
- Brownell, V.R., and J.L. Riley. 2000. *The alvars of Ontario: Significant alvar natural areas in the Ontario Great Lakes region*. Federation of Ontario Naturalists, Don Mills, Ontario. 219 pp.
- Brugam, M.B., M. Giorgi, C. Sesvold, S.M. Johnson, and R. Almos. 1997. Holocene vegetation history in the Sylvania Wilderness Area of the western Upper Peninsula of Michigan. *American Midland Naturalist* 137:62–71.
- Burne, M.R., and C.R. Griffin. 2005. Protecting vernal pools: A model from Massachusetts, USA. *Wetlands Ecology and Management* 13:357–375.
- Calhoun, A.J., and P.G. deMaynadier. 2008. *Science and conservation of vernal pools in northeastern North America*. CRC Press, New York. 363 pp.
- Cameron, E.K., and E.M. Bayne. 2009. Road age and its importance in earthworm invasion of northern boreal forests. *Journal of Applied Ecology* 46:28–36.
- Canham, C.D., and O.L. Loucks. 1984. Catastrophic windthrow in the presettlement forests of Wisconsin. *Ecology* 65:803–809.
- Carpenter, Q.C. 1995. *Toward a new definition of calcareous fen for Wisconsin*. Ph.D. Dissertation, University of Wisconsin-Madison, Madison. 592 pp.
- Casanova, M.T., and M.A. Brock. 2000. How do depth, duration, and frequency of flooding influence the establishment of wetland plant communities. *Plant Ecology* 147:237–250.
- Castleberry, S.B., W.P. Smith, W.M. Ford, and K.V. Miller. 2005. Herbivory and gap regeneration in southern bottomland hardwood forests. Pages 143–154 in L. Fredrickson, editor. *Proceedings of the symposium on ecology and management of bottomland hardwood systems: The state of our understanding*. University of Missouri Press, Columbia, Missouri.
- Catling, P.M., and V.R. Brownell. 1995. A review of alvars in the Great Lakes region: Distribution, floristic composition, biogeography, and protection. *Canadian Field Naturalist* 109:143–171.
- Catling, P.M., and V.R. Brownell. 1999. Alvars of the Great Lakes region. Pages 375–391 in R.C. Anderson, J.S. Fralish, and J.H. Baskin, editors. *Savannas, barrens, and rock outcrop plant communities of North America*. Cambridge University Press, Cambridge, U.K. 480 pp.
- Center for Watershed Protection. 2003. *Impacts of impervious cover on aquatic systems*. Watershed Protection Research Monograph No. 1, Center for Watershed Protection, Ellicott City, Maryland.
- Christensen, E.M., J.J. Clausen, and J.T. Curtis. 1959. Phytosociology of the lowland forests of northern Wisconsin. *American Midland Naturalist* 62:232–247.
- Christy, J. 1982. Unpublished mosses data based on collections and housed in files of the State Natural Areas program, Bureau of Endangered Resources, Wisconsin Department of Natural Resources, Madison.
- Christy, J.A., M.J. Dibben, F.J. Bowers, and R.E. Andrus. 1986. Ten mosses new to Wisconsin. *Evansia* 3:12–13.
- Christy, J.A., and T.A. Meyer. 1991. Bryophytes of Algific Talus Slopes in Wisconsin's Driftless Area. *Rhodora* 93:242–247.
- Clausen, J.J. 1957. A phytosociological ordination of the conifer swamps in Wisconsin. *Ecology* 38:638–648.
- Clayton, L., and J.W. Attig. 1989. *Glacial Lake Wisconsin*. The Geological Society of America, Geological Society of America Memoir 173, Boulder, Colorado. 80 pp.
- Cleland, D.T., P.E. Avers, W.H. McNab, M.E. Jensen, R.G. Bailey, T. King, and W.E. Russell. 1997. National Hierarchical Framework of Ecological Units. Pages 181–200 in M.S. Boyce and A. Haney, editors. *Ecosystem management applications for sustainable forest and wildlife resources*. Yale University Press, New Haven, Connecticut.
- Cochrane, T.S., K. Elliot, and C.S. Lipke. 2008. *Prairie plants of the University of Wisconsin-Madison Arboretum*. Second printing. University of Wisconsin Press, Madison. 366 pp.
- Colburn, E.A. 2004. *Vernal pools: Natural history and conservation*. McDonald and Woodward Publishing Company, Blacksburg, Virginia. 426 pp.
- Collada, A.E., and A. Haney. 1998. Vegetation changes associated with oak wilt. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 86:35–46.
- Cole, M.S. 1977. *The ecology of lichens and bryophytes in the Kickapoo River Valley, southwestern Wisconsin*. Ph.D. thesis, University of Wisconsin-Madison, Madison. 288 pp.
- Comer, P.K., D. Albert, H. Wells, B. Hart, J. Raab, D. Price, D. Kashian, R. Corner, and D. Schuen. 1995. *Michigan's native landscape as interpreted from the General Land Office surveys 1816–1856*. Michigan Natural Features Inventory, Report No. 1995-07, Lansing, Michigan.
- Comer, P.K., K. Goodin, G. Hammerson, S. Menard, M. Pyne, M. Reid, M. Robles, M. Russo, L. Sneddon, K. Snow, L. Tomaino, and M. Tuffly. 2005. *Biodiversity values of geographically isolated wetlands: An analysis of 20 U.S. states*. NatureServe, Arlington, Virginia.
- Costello, D.F. 1936. Tussock meadows in southeastern Wisconsin. *Botanical Gazette* 97:610–648.
- Cottam, G. 1949. The phytosociology of an oak woods in southwestern Wisconsin. *Ecology* 30(3):271–287.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. Office of Biological Services, Fish and Wildlife Service, U.S. Department of the Interior. Washington, D.C. 103 pp.
- Cowles, H.C. 1899. The ecological relations of the vegetation on the sand dunes of Lake Michigan. *Botanical Gazette* 27(2):95–117.
- Crow, G.E., and C.B. Hellquist. 2000a. *Aquatic and wetland plants of northeastern North America*. Volume 1. University of Wisconsin Press, Madison.
- Crow, G.E., and C.B. Hellquist. 2000b. *Aquatic and wetland plants of northeastern North America*. Volume 2. University of Wisconsin Press, Madison.
- Crow, T.R., M.E. Baker, and B.V. Barnes. 2000. Diversity in riparian landscapes. Pages 43–66 in E.S. Verry, J.W. Hornbeck, and C.A. Dolloff, editors. *Riparian management in forests of the continental eastern United States*. CRC Press, Boca Raton, Florida.
- Crum, H. 1984. Sphagnopsida, Sphagnaceae. *North American Flora*, Series 2, Part 11:1–180.
- Crum, H. 1988. *A focus on peatlands and peat mosses*. University of Michigan Press, Ann Arbor. 306 pp.
- Crum, H. 2004. *Mosses of the Great Lakes*. Fourth edition. University of Michigan Herbarium, Ann Arbor. 592 pp.
- Curtis, J.T. 1959. *Vegetation of Wisconsin: An ordination of plant communities*. University of Wisconsin Press, Madison. 657 pp.
- Cutko, A., and T.J. Rawinski. 2008. Flora of northeastern vernal pools. Pp 71–90 in A.J.K. Calhoun and P.G. deMaynadier, editors. *Science and conservation of vernal pools of northeastern North America*. CRC Press, Boca Raton, Florida.
- Dachnowski, A.P. 1925. Profiles of peat lands within the limits of extinct Glacial Lakes Agassiz and Wisconsin. *Botanical Gazette* 80:345–366.

- Daijiang, Li, and D.M. Waller. 2015. Drivers of observed biotic homogenization in central Wisconsin pine barrens. *Ecology* 96(4):1031–1041.
- David, P. 2000. An overview of the Great Lakes Indian Fish and Wildlife Commission's wild rice management program. Pages 149–157 in L.S. Williamson, L.A. Dlutkowsky, and A.P. McCammom Soltis, editors. *Proceedings of the Wild Rice Research and Management Conference 7–8 July, 1999, Carlton, Minnesota*. Great Lakes Indian Fish and Wildlife Commission, Odanah, Wisconsin.
- Davis, M.D., S. Sugita, R.R. Calcote, and L.E. Frelich. 1992. Effects of invasion by *Tsuga canadensis* on a North American Forest ecosystem. Pages 33–44 in A. Teller, P. Mathy, and J.N.R. Jeffers, editors. *Response of forested ecosystems to environmental changes*. Elsevier Applied Science, London.
- Davis, M.D., S. Sugita, R.R. Calcote, T.E. Parshall, and J.B. Ferrari. 1995. 3000 years of abundant hemlock in upper Michigan. Pages 19–27 in G. Mroz and J. Martin, editors. *Hemlock ecology and management*. University of Wisconsin-Madison, Department of Forestry, Madison.
- Deil, U. 2005. A review on habitats, plant traits and vegetation of ephemeral wetlands – a global perspective. *Phytocoenologia* 35:533–705.
- Delong, K.T., and C. Hooper. 1996. A potential understory flora for oak savanna in Iowa. *Journal of the Iowa Academy of Science* 103(1–2):9–28.
- Dey, D.C., A.A. Royo, P.H. Brose, T.F. Hutchinson, M.A. Spetich, and S.H. Stoleson. 2010. An ecologically based approach to oak silviculture: A synthesis of 50 years of oak ecosystem research in North America. *Revista Colombia Forestal* 13(2):201–222.
- DiMauro, J.D., and M.L. Hunter, Jr. 2002. Reproduction of amphibians in natural and anthropogenic pools in managed forests. *Forest Science* 48(2):397–406.
- Dorney, C.H., and J.R. Dorney. 1989. An unusual oak savanna in north-eastern Wisconsin: The effect of Indian-caused fire. *American Midland Naturalist* 122:103–113.
- Dott, R.H., and J.W. Attig. 2004. *Roadside geology of Wisconsin*. Mountain Press Publishing Company, Missoula, Montana. 346 pp.
- Drever, J.I. 1982. *The geochemistry of natural waters*. Prentice-Hall, Englewood Cliffs, New Jersey.
- Dunn, C.P., G.R. Guntenspergen, and J.A. Dorney. 1983. Catastrophic wind disturbance in an old-growth hemlock-hardwood forest, Wisconsin. *Canadian Journal of Botany* 61:211–217.
- Eckstein, R.E. 1980. *Eastern hemlock (Tsuga canadensis) in north central Wisconsin*. Wisconsin Department of Natural Resources, Research Report 104, Madison. 20 pp.
- Edinger, G.J., D.J. Evans, S. Gebauer, T.G. Howard, D.M. Hunt and A.M. Olivero, editors. 2014. *Ecological communities of New York State*. Second edition: A revised and expanded edition of Carol Reschke's *Ecological Communities of New York State*. New York Natural Heritage Program, New York State Department of Environmental Conservation, Albany, New York.
- Eggers, S.D., and D.M. Reed. 1987. Wetland plants and plant communities of Minnesota and Wisconsin. U.S. Army Corps of Engineers, St. Paul District, St. Paul. 200 pp.
- Eggers, S.D., and D.M. Reed. 2014. Wetland plants and plant communities of Minnesota and Wisconsin. Version 3.1. U.S. Army Corps of Engineers, St. Paul District, St. Paul. 478 pp.
- Eggleton, F.E. 1986. Limnology of a meromictic interglacial plunge-basin lake. *Transactions of the American Microscopical Society* 75:334–378.
- Engel, S. 1985. *Aquatic community interactions of submerged macrophytes*. Wisconsin Department of Natural Resources, Technical Bulletin 156, Madison. 79 pp.
- Epstein, E.J., E.J. Judziewicz, and W.A. Smith. 1997. *Wisconsin's Lake Superior coastal wetlands evaluation: Including other selected features of the Lake Superior Basin*. Wisconsin Department of Natural Resources, Bureau of Endangered Resources, Report to the U.S. Environmental Protection Agency, Great Lakes National Program Office, Madison.
- Eswein, R.J. 1995. *Logging dilemma in the big swamp: A late 1800s history of harvesting the last virgin pine forest of west central Wisconsin*. Monroe County Historical Society, Sparta, Wisconsin.
- Faber-Langendoen, D., and J. Tester. 1993. Oak mortality in sand savannas following drought in east-central Minnesota. *Bulletin of the Torrey Botanical Club* 120(3):248–256.
- Fannucchi, G.T., W.M. Fannucchi, and S. Craven. 1986. *Wild-rice in Wisconsin: Its ecology and cultivation*. University of Wisconsin-Extension, Bulletin No. G3372, Madison.
- Fassett, N.C. 1930. The plants of some northeastern Wisconsin lakes. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 25:157–168.
- Fassnacht, K.S., D.R. Bronson, B.J. Palik, A.W. D'Amato, C.G. Lorimer, and K.J. Martin. 2015. *Accelerating the development of old-growth characteristics in second-growth northern hardwoods*. U.S. Forest Service, Northern Research Station, General Technical Report NRS-144, Newtown Square, Pennsylvania. 33 pp.
- Finley, R. 1976. *Original vegetation cover of Wisconsin: compiled from U.S. General Land Office notes*. University of Wisconsin Extension, University of Wisconsin Center System. Map, scale of 1:500,000. Available from Wisconsin Geological and Natural History Survey, Madison, Wisconsin.
- Flannigan, M.D. 1993. Fire regime and the abundance of red pine. *International Journal of Wildland Fire* 3(4):241–247.
- Flinn, K.M., M.J. Lechowicz, and M.J. Waterway. 2008. Plant species diversity and composition of wetlands within an upland forest. *American Journal of Botany* 95:1216–1224.
- Foote, K.G. 1966. The vegetation of lichens and bryophytes on limestone outcrops in the Driftless Area of Wisconsin. *Bryologist* 69:265–292.
- Fralish, J.S. 2004. The keystone role of oak and hickory in the central hardwood forest. Pages 78–87 in M.A. Spetic, editor. *Upland oak ecology symposium: History, current conditions, and sustainability*. U.S. Forest Service, Southern Research Station, General Technical Report SRS-73, Asheville, North Carolina.
- Freeman, R.E., E.H. Stanley, and M.G. Turner. 2003. Analysis and conservation implications of landscape change in the Wisconsin River floodplain, USA. *Ecological Applications* 13:416–431.
- Frelich, L.E. 2002. *Forest dynamics and disturbance regimes: Studies from temperate evergreen-deciduous forests*. Cambridge University Press, Cambridge, U.K. 266 pp.
- Frelich, L.E., R.R. Calcote, M.B. Davis, and J. Pastor. 1993. Patch formation and maintenance in an old growth hemlock-hardwood forest. *Ecology* 74:513–527.
- Frelich, L.E., and C.G. Lorimer. 1985. Current and predicted long-term effects of deer browsing in hemlock forests of Michigan, USA. *Biological Conservation* 34:99–120.
- Frelich, L.E., and C.G. Lorimer. 1991. Natural disturbance regimes in hemlock-hardwood forests of the Upper Great Lakes region. *Ecological Monographs* 61(2):145–164.
- Frelich, L.E., and P.B. Reich. 1991. A simulation of landscape-level stand dynamics in the northern hardwood region. *Journal of Ecology* 79:223–233.
- Frelich, L.E., and P.B. Reich. 1995. Spatial patterns and succession in a Minnesota southern boreal forest. *Ecological Monographs* 65(3):325–346.
- Frelich, L.E., and P.B. Reich. 1996. *Old growth in the Great Lakes region*. Pages 144–159 in M.B. Davis, editor. *Eastern old growth forests*. Island Press, Washington, D.C.
- Frelich, L.E., and P.B. Reich. 2003. Perspectives on development of definitions and values related to old-growth forests. *Environmental Review* 11:S9–S22.
- Frest, T. 1991. *Summary status reports on eight species of candidate*

- land snails from the Driftless Area (Paleozoic Plateau), Upper Midwest. U.S. Fish and Wildlife Service, Region 3, Contract no. 30181-01366, Final Report. Fort Snelling, Minnesota.
- Frissell, C.A., W.J. Liss, C.E. Warren, and M.D. Hurley. 1986. A hierarchical framework for stream habitat classification: Viewing streams in a watershed context. *Environmental Management* 10(2):199–214.
- Fry, B. 1986. Sources of carbon and sulfur nutrition for consumers in three meromictic lakes of New York State. *Limnology and Oceanography* 31(1):79–88.
- Gergel, S.E., M.D. Dixon, and M.G. Turner. 2002. Consequences of human-altered floods: Levees, floods, and floodplain forests along the Wisconsin River. *Ecological Applications* 12(6):1755–1770.
- Gibbs, J.P. 1998. Importance of small wetlands for the persistence of local populations of wetland associated animals. *Wetlands* 13:25–31.
- Gilbert, M.L., and J.T. Curtis. 1953. Relation of the understory to the upland forest in the prairie-forest border region of Wisconsin. *Transactions of the Wisconsin Academy of Science, Arts and Letters* 47:183–195.
- Glaser, P.H. 1987. *The ecology of patterned boreal peatlands of northern Minnesota: A community profile*. U.S. Fish and Wildlife Service, National Wetlands Research Center, Biological Report 85(7.14), Washington, D.C. 98 pp.
- Glaser, P. 1992. Raised bogs in eastern North America – regional controls for species richness and floristic assemblages. *Journal of Ecology* 80: 535–554.
- Glime, J.M. 1993. *The elfin world of mosses and liverworts of Michigan's Upper Peninsula and Isle Royale*. Isle Royale Natural History Association, Houghton, Michigan.
- Goder, H.A. 1955. *A phytosociological study of Tsuga canadensis near the termination of its range in Wisconsin*. Ph.D. dissertation, University of Wisconsin-Madison, Madison.
- Goodburn, J.M., and C.G. Lorimer. 1998. Cavity trees and coarse woody debris in old-growth and managed northern hardwood forests in Wisconsin and Michigan. *Canadian Journal of Forest Research* 28:427–438.
- Grady, W. 2007. *The Great Lakes: The natural history of a changing region*. Greystone Books, Vancouver, British Columbia, Canada.
- Green, J.G. 1995. *Birds and forests: A management and conservation guide*. Minnesota Department of Natural Resources, St. Paul, Minnesota. 182 pp.
- Gregg, L., and N.D. Niemuth. 2000. The history, status, and future of sharp-tailed grouse in Wisconsin. *Passenger Pigeon* 62:158–174.
- Gregory, S.V., F.J. Swanson, W.A. McKee, and K.W. Cummins. 1991. An ecosystem perspective of riparian zones. *BioScience* 41:540–551.
- Grimm, E.C. 1984. Fire and other factors controlling the Big Woods vegetation of Minnesota in the mid-nineteenth century. *Ecological Monographs* 54:291–311.
- Grossman, E.B., and D.J. Mladenoff. 2007. Open woodland and savanna decline in a mixed-disturbance landscape (1938 to 1998) in the northwest Wisconsin sand plain. *Landscape Ecology* 22:43–55.
- Habeck, J. 1959. A phytosociological study of the upland forest communities in the central Wisconsin sand plain area. *Transactions of the Wisconsin Academy of Science, Arts and Letters* 48:31–48.
- Hale, C.M., L.E. Frelich, and P.B. Reich. 2006. Changes in cold-temperate hardwood forest understory plant communities in response to invasion by European earthworms. *Ecology* (87):1637–1649.
- Hale, B.W., E.M. Alsum, and M.S. Adams. 2008. Changes in the floodplain forest vegetation of the Lower Wisconsin River over the last fifty years. *The American Midland Naturalist* 2:454–476.
- Hale, C.M., L.E. Frelich, P.B. Reich, and J. Pastor. 2008. Exotic earthworm effects on hardwood forest floor, nutrient availability, and native plants: A mesocosm study. *Oecologia* 155(3):509–518.
- Haney, A., and S.I. Apfelbaum. 1990. Structure and dynamics of Midwest oak savannas. Pages 19–30 in J.M. Sweeney, editor. *Management of dynamic ecosystems*. North Central Section, The Wildlife Society, West Lafayette, Indiana.
- Haney, A., and S.I. Apfelbaum. 1994. Measuring changes in oak savannas: A review and recommendations for a monitoring protocol. Pages 253–257 in J. Fralish, R.C. Anderson, J.E. Ebinger, and R. Szafoni, editors. *Proceedings of the North American Conference on savannas and barrens*. Illinois University, Normal, Illinois.
- Hanowski, J., N. Danz, J. Lind., and G. Niemi. 2003. Breeding bird response to riparian forest harvest and harvest equipment. *Forest Ecology and Management* 174:315–328.
- Hansen, H.P. 1933. Tamarack bogs of the driftless area of Wisconsin. *Bulletin of the Milwaukee Public Museum* 7:231–394.
- Hansson, L. 1992. Landscape ecology of boreal forests. *Trends in Ecology and Evolution* 7:299–302.
- Harris, A.G., S.C. McMurray, P.W.C. Uhlig, J.K. Jeglum, R.F. Foster, and G.D. Racey. 1996. *Field guide to the wetland ecosystem classification for northwestern Ontario*. Ontario Ministry of Natural Resources, Northwest Science and Technology, Field Guide FG-01, Thunder Bay, Ontario. 74 pp.
- Harris, L.D. 1984. *The fragmented forest: Island biogeographic theory and preservation of biodiversity*. University of Chicago Press, Chicago.
- Harris, R.J., and J.M. Reed. 2001. Territorial movement of black-throated blue warblers in a landscape fragmented by forestry. *The Auk* 118(2):544–549.
- Heikens, A.L., and P.A. Robertson. 1994. Barrens of the Midwest: A review of the literature. *Castanea* 59:184–194.
- Heinselman, M.L. 1963. Forest sites, bog processes, and peatland types in the Glacial Lake Region, Minnesota. *Ecological Monographs* 33(4):327–374.
- Heinselman, M.L. 1970. Landscape evolution, peatland types, and the environment in the Glacial Lake Agassiz Peatland Natural Area, Minnesota. *Minnesota Ecological Monographs* 40:235–261.
- Heinselman, M.L. 1981. Fire and succession in the conifer forests of northern North America. Pages 374–405 in D.C. West, H.H. Shugart, and D.B. Botkin, editors. *Forest succession: Concepts and application*. Springer-Verlag, Washington, D.C.
- Henderson, R.A. 1995. *Plant species-composition of Wisconsin prairies: An aid to selecting species for plantings and restorations based upon University of Wisconsin-Madison Plant Ecology Laboratory data*. Wisconsin Department of Natural Resources, Technical Bulletin 188, Madison.
- Henderson, R.A. 2005. Oak savannas in Wisconsin. Wisconsin Department of Natural Resources, Madison. 6 pp.
- Henderson, R., and E. Epstein. 1995. Oak savannas in Wisconsin. Pages 230–232 in E.T. LaRoe, G.S. Farris, C.E. Puckett, P.D. Doran, and M.J. Mac, editors. *Our living resources: a report to the nation on the distribution, abundance, and health of U.S. plants, animals, and ecosystems*. U.S. Department of Interior, National Biological Service, Washington, D.C. Available online at <https://archive.org/stream/ourlivingresource00unit#page/230/mode/2up>.
- Henderson, R.A., and J. Krause. 1995. *Identification of landscape management opportunities and needs in Wisconsin*. Wisconsin Department of Natural Resources, Final report, Pittman Robertson Project W-160-P, Madison.
- Herdendorf, C.E. 1990. Great Lakes estuaries. *Coastal and Estuarine Research Federation* 13(4):493–503. Available online at <http://www.jstor.org/stable/1351795>.
- Higgins, J., M. Lammert, M. Bayes, M. DePhilip, and D. Grossman. 1998. *Freshwater conservation in the Great Lakes basin: Development and application of an aquatic community classification*. Great Lakes Office of The Nature Conservancy, Chicago.
- Hipp, A. 2008. *Field guide to Wisconsin sedges: An introduction to the genus Carex (Cyperaceae)*. University of Wisconsin Press, Madison. 265 pp. (Note: This important and diverse but difficult group has often been ignored or lumped in descriptive ecological studies; therefore we have included this excellent work here.)

- Houseman, G.R., and R.C. Anderson. 2002. Effects of jack pine plantation management on barrens flora and potential Kirtland's Warbler nest habitat. *Restoration Ecology* 10(1):27–36.
- Huijck, P.M. 1995. Lowland savannas: Groundlayer composition and distribution in relation to elevation and light. M.S. Thesis. University of Wisconsin-Madison, Madison.
- Hunter, M.L., Jr. 1993. Natural fire regimes as spatial models for managing boreal forests. *Biological Conservation* 65(2):115–120.
- Imlay, M.J. 1973. A case for protecting the Driftless Area of the Upper Midwest. *Malacological Review* 6(1):64–65.
- Jass, J., and B. Klausmeier. 2006. *Determining the presence of fairy shrimps (Crustacea: Anostraca) at ephemeral pond sites in Wisconsin*. Wisconsin Department of Natural Resources, Research Report 188, Madison.
- Jennings, M.A., M.A. Bozek, G.R. Hatzenbeler, E. Emmons, and M. Staggs. 1999a. Cumulative effects of incremental shoreline habitat modification on fish assemblages in north temperate lakes. *North American Journal of Fisheries Management* 19:18–27.
- Jennings, M.J., J. Lyons, E. Emmons, G.R. Hatzenbeler, M.A. Bozek, T.D. Simonson, T.D. Beard, Jr., and D. Fago. 1999b. Toward the development of an index of biotic integrity for inland lakes in Wisconsin. Pages 541–562 in T.P. Simon, editor. *Assessing the Sustainability and Biological Integrity of Water Resources Using Fish Communities*. CRC Press, Boca Raton, Florida.
- Jennings, M.J., D. Faber-Langendoen, O.L. Loucks; and R.K. Peet. 2009a. Standards for associations and alliances of the U.S. National Vegetation Classification. *Ecological Monographs* 79(2):173–199.
- Jennings, M.J., G.R. Hatzenbeler, M.A. Bozek, and C.E. Edwards. 2009b. Natural and human influences on fish species richness in small north temperate lakes: Implications for bioassessment. *Journal of Freshwater Ecology* 24:7–18.
- Johnson, P.S., S.R. Shifley, and R. Rogers. 2009. *The ecology and silviculture of oaks*. Second edition. CAB International, Cambridge, Massachusetts.
- Johnson, S.E., and D.M. Waller. 2015. Patterns and drivers of riparian forest vegetation changes over the last half century in southern Wisconsin. Conference paper, available online at https://www.researchgate.net/publication/283331754_PATTERNS_AND_DRIVERS_OF_RIPARIAN_FOREST_VEGETATION_CHANGES_OVER_LAST_HALF_CENTURY_IN_SOUTHERN_WISCONSIN?enrichId=rgreq-bbe596f2f346238ca-5d134a087e52b98-XXX&enrichSource=Y292ZXJQY-WldlOzI4MzZMTc1NDtBUozNTlyMTkzODkwMjlyM-DIAMTQ2MDk4NzA1NDc2OQ%3D%3D&el=1_x_2&esc=publicationCoverPdf.
- Jones, M., and M. Bowles. 2013. *Tree ring analysis of eastern red cedar reveals fire history of Fults Hill Prairie Nature Reserve, and its relationship to climate and loss of prairie vegetation*. The Morton Arboretum, Lisle, Illinois.
- Judziwicz, E. 2001. Flora and vegetation of the Grand Traverse Islands (Lake Michigan), Wisconsin and Michigan. *The Michigan Botanist* 40(4):81–208.
- Judziwicz, E.J., R.W. Freckmann, L.G. Clark, and M.R. Black. 2014. *Field guide to Wisconsin grasses*. University of Wisconsin Press, Madison. 346 pp.
- Judziwicz, E., and R. Koch. 1993. Flora and vegetation of the Apostle Islands National Lakeshore and Madeline Island, Ashland and Bayfield counties, Wisconsin. *The Michigan Botanist* 32(2):43–189.
- Kahl, R. 1993. *Aquatic macrophyte ecology of the Upper Winnebago Pool Lakes, Wisconsin*. Wisconsin Department of Natural Resources Technical Bulletin 182, Madison. 60 pp.
- Keddy, P.A., and A.A. Reznicek. 1986. Great Lakes vegetation dynamics: The role of fluctuating water levels and buried seeds. *Journal of Great Lakes Research* 12:25–36.
- Keough, J.A. 1986. The Mink River – A fresh water estuary. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 74:1–11.
- Keough, J.R., T.A. Thompson, G.R. Guntenspergen, and D.A. Wilcox. 1999. Hydrogeomorphic factors and ecosystem responses in coastal wetlands of the Great Lakes. *Wetlands* 19:821–834.
- Kershner, J.L. 1997. Setting riparian/aquatic restoration objectives within a watershed context. *Restoration Ecology* 5:15–24.
- King, R. 2000. Effects of single burn events on degraded oak savanna. *Ecological Restoration* 18:228–233.
- Kingsbury, B.A., and J. Gibson, editors. 2012. *Habitat management guidelines for amphibians and reptiles of the Midwestern United States*. Second edition. Partners in Amphibian and Reptile Conservation (PARC), technical publication HMG-1. 155 pp.
- Kirk, K. 1996. *The Karner blue community: Understanding and protecting rare species of the barrens*. Wisconsin Department of Natural Resources, Bureau of Endangered Resources, Final report to the U.S. Fish & Wildlife Service, Madison, Wisconsin. 96 pp.
- Kirk, K., and C.R. Bomar. 2005. *Guide to the grasshoppers of Wisconsin*. Wisconsin Department of Natural Resources, Bureau of Integrated Science Services, Madison. 154 pp.
- Kline, V.M. 1997. Orchards of oak and a sea of grass. Pages 3–21 in S. Packard and C.F. Mutel, editors. *The Tallgrass Prairie Restoration Handbook*. Island Press, Washington, D.C.
- Kline, V.M., and T.M. McClintock. 1991. Effect of burning a dry oak forest infested with woody exotics. Pages 207–214 in G.V. Burger, J.E. Ebinger, and G.S. Wilhelm. *Proceedings of the oak woods management workshop 2008*. Eastern Illinois University, Charleston, Illinois.
- Klinger, L.F. 1996. The myth of the classic hydrosere model of bog succession. *Arctic and Alpine Research* 28:1–9.
- Kneeshaw, D., and S. Gauthier. 2003. Old growth in the boreal forest: A dynamic perspective at the stand and landscape level. *Environmental Review* 11(S1):S99–S114.
- Knoet, T.G., L.A. Schulte, J.C. Tyndall, and B.J. Palik. 2010. The state of the system and steps toward resilience of disturbance-dependent oak forests. *Ecology and Society* 15(4):5. Available online at <http://www.ecologyandsociety.org/vol15/iss4/art5/>.
- Knutson, M.G., J.P. Hoover, and E.E. Klaas. 1996. The importance of floodplain forests in the conservation and management of Neotropical migratory birds in the Midwest. Pages 168–188 in F.R. Thompson III, ed. *Management of Midwestern Landscapes for the conservation of Neotropical migratory birds*. U.S. Forest Service, North Central Forest Experiment Station. General Technical Report NC-1817, St. Paul.
- Knutson, M.G., L.E. McColl, and S.A. Suarez. 2005. Breeding bird assemblages associated with stages of forest succession in large river floodplains. *Natural Areas Journal* 25:55–70.
- Kohm, K.A., and J.F. Franklin. 1997. *Creating a forestry for the 21st century: The science of ecosystem management*. Island Press, Washington, D.C. 475 pp.
- Kost, M.A., D.A. Albert, J.G. Cohen, R.K. Schillo, C.R. Weber, and K.A. Chapman. 2007. *Natural communities of Michigan: Classification and description*. Michigan Natural Features Inventory, Report Number 2007-21, Lansing. 314 pp.
- Kost, M.A., and D. De Steven. 2000. Plant community responses to prescribed burning in Wisconsin sedge meadows. *Natural Areas Journal* 20:36–49.
- Kotar, J., and T.L. Burger. 1996. *A guide to forest communities and habitat types of central and southern Wisconsin*. University of Wisconsin – Madison, Department of Forestry, Madison.
- Kotar, J., J.A. Kovach, and T.L. Burger. 2002. *A guide to forest communities and habitat types of northern Wisconsin*. Second edition. University of Wisconsin-Madison, Department of Forest Ecology and Management, Madison.
- Kotar, J., J.A. Kovach, and C.T. Locey. 1988. *Field guide to habitat types of northern Wisconsin*. University of Wisconsin – Madison, Department of Forestry, and Wisconsin Department of Natural Resources, Madison.

- Kraszewski, S.E., and D.M. Waller. 2008. Fifty-five year changes in species composition on dry prairie remnants in south-central Wisconsin. *Torrey Botanical Society* 135(2):236–244.
- Kreitinger, K. 2013. Wild rice: habitat description. In K. Kreitinger, Y. Steele, and A. Paulos. The Wisconsin All-bird Conservation Plan, version 2.0. Wisconsin Bird Conservation Initiative, Wisconsin Department of Natural Resources, Madison, Wisconsin.
- Lammert, M., J. Higgins, D. Grossman, and M. Bryer. 1997. *A classification framework for freshwater communities*. The Nature Conservancy, Great Lakes Program Office, Chicago (Lammert and Higgins) and The Nature Conservancy, Ecology Department, Conservation Science Division, International Headquarters (Grossman and Bryer), Arlington, Virginia.
- Lange, K.I. 2014. *Song of place: A natural history of the Baraboo Hills*. Ballindalloch Press, Baraboo, Wisconsin. 663 pp.
- Leach, M.K., and T.J. Givnish. 1998. Identifying highly restorable savanna remnants. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 86:119–127.
- Leach, M.K., and T.J. Givnish. 1999. Gradients in the composition, structure, and diversity of remnant oak savannas in southern Wisconsin. *Ecological Monographs* 69(3):353–374.
- Leahy, M.J., and K.S. Pregitzer. 2003. A comparison of presettlement and present-day forests in northeastern lower Michigan. *American Midland Naturalist* 149(1):71–89.
- Leach, M.K., and L. Ross, editors. 1995. *Midwest oak ecosystem recovery plan*. Midwest Oak Savanna and Woodland conference, Springfield, MO.
- Leibowitz, S.G., and R.T. Brooks. 2008. Hydrology and landscape connectivity of vernal pools. Pages 31–53 in A.J.K. Calhoun, P.G. DeMaynadier. *Science and conservation of vernal pools of north-eastern North America*. CRC Press, Boca Raton, Florida.
- Lewis, H.T., and T.A. Ferguson. 1988. Yards, corridors, and mosaics: How to burn a boreal forest. *Human Ecology* 16(1):57–77.
- Liang, D., and D.M. Waller. 2015. Drivers of observed biotic homogenization in central Wisconsin. *Ecology* 96(4):1030–1041.
- Lichter, J. 1998. Primary succession and forest development on coastal Lake Michigan sand dunes. *Ecological Monographs* 68:487–510.
- Lillie, R.A. 2003. Macroinvertebrate community structure as a predictor of water duration in Wisconsin wetlands. *Journal of the American Water Resources Association* 39:398–400. doi:10.1111/j.1752-1688.2003.tb04393.x
- Little, A.M. 2017. Ephemeral pond vegetation of the glaciated Upper Midwest: A comparison with permanent wetlands. Technical Report, University of Wisconsin-Stout, Menomonie, Wisconsin. 17 pp.
- Loope, W.L. 1998. Human vs. lightning ignition of presettlement surface fires in coastal pine forests of the Upper Great Lakes. *American Midland Naturalist* 140:206–218.
- Lorimer, C.G. 1984. Development of the red maple understory in northeastern oak forests. *Forest Science* 30:3–22.
- Lorimer, C.G., and L.E. Frelich. 1994. Natural disturbance regimes in old growth northern hardwoods. *Journal of Forestry* 92:33–38.
- Loss, S.R., R.M. Hueffmeier, C.M. Hale, G.E. Host, G. Sjerven, and L.E. Frelich. 2013. Earthworm invasions in northern hardwood forest: A rapid assessment method. *Natural Areas Journal* 33(1):21–30.
- Lyons, J. 1992. *Using the Index of Biotic Integrity (IBI) to measure environmental quality in warmwater streams in Wisconsin*. U.S. Forest Service, North Central Experiment Station, General Technical Report NC-149, St. Paul.
- Lyons, J. 1996. Patterns in the composition of fish assemblages in streams. *Environmental Biology of Fishes* 45:329–341.
- Lyons, J. 2005. Aquatic communities: Description, threats, and conservation recommendations. Wisconsin Department of Natural Resources, Bureau of Integrated Science Services, Madison.
- Lyons, J. 2006. A fish-based index of biotic integrity to assess intermittent headwater streams in Wisconsin, USA. *Environmental Monitoring and Assessment* 122:239–258.
- Lyons, J., L. Wang, and T. Simonson. 1996. Development and validation of an Index of Biotic Integrity for coldwater streams in Wisconsin. *North American Journal of Fisheries Management* 16(2).
- Lyons, J., T. Zorn, J. Stewart, P. Seelbach, K. Wehrly, and Lizhu Wang. 2009. Defining and characterizing coolwater streams and their fish assemblages in Michigan and Wisconsin, USA. *North American Journal of Fisheries Management* 29:1130–1151.
- Mack-Olson, D. 1998. *Felsenmeers: The species and ecology of the glacial relicts of Rusk and Barron counties*. Unpublished report to University of Wisconsin Department of Botany.
- Matteson, S. 1996. Birds of Wisconsin's lake beaches and dunes. *Pas-senger Pigeon* 58(4):335–413.
- Matula, C. 2009. *Deer browse, Pennsylvania sedge, and silviculture strategies to enhance tree regeneration in northern hardwood forests in Wisconsin*. Draft report, Division of Forestry, Northern Region, Wisconsin Department of Natural Resources, Woodruff, Wisconsin.
- Maxwell, J.R., C.J. Edwards, M.E. Jensen, S.J. Paustian, H. Parrott, and D.M. Hill. 1995. *A hierarchical framework of aquatic ecological units in North America (Nearctic Zone)*. U.S. Forest Service, North Central Forest Experiment Station, General Technical Report NC-176, St. Paul.
- Maycock, P.F. 1957. *The phytosociology of boreal conifer-hardwood forests of the Great Lakes Region*. Ph.D. thesis, University of Wisconsin-Madison, Madison, Wisconsin.
- Maycock, P.F. 1961. The spruce-fir forest of the Keweenaw Peninsula, northern Michigan. *Ecology* 42:357–365.
- McIntosh, R.P. 1950. Pine stands in southwestern Wisconsin. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 40:243–257.
- McRae, D.J., T.J. Lynham, and R.J. Frech. 1994. Understory prescribed burning in red pine and white pine. *Forestry Chronicle* 70(4):395–401.
- Meadows, J.S., and G.J. Nowacki. 1996. *An old-growth definition for eastern riverfront forests*. U.S. Forest Service, Southern Forest Research Station, General Technical Report, SRS-4, Asheville, North Carolina. 7 pp.
- Meeker, J.E. 1999. The ecology of “wild” wild rice (*Zizania palustris* var. *palustris*) in the Kakagon Sloughs, a riverine wetland on Lake Superior. Pages 68–83 in L.S. Williamson, L.A. Dlutkowski, and A.P. McCammon-Soltis, editors. *Proceedings of the Wild Rice Research and Management Conference 7–8 July, 1999, Carlton, Minnesota*. Great Lakes Indian Fish and Wildlife Commission, Odanah, Wisconsin.
- Middleton, B. 2002a. Nonequilibrium dynamics of sedge meadows grazed by cattle in southern Wisconsin. *Plant Ecology* 161(1):89–110.
- Middleton, B. 2002b. Winter burning and reduction of *Cornus sericea* in sedge meadows of southern Wisconsin. *Restoration Ecology* 10(4):1–8.
- Middleton, B. 2004. *Cattle grazing and its long-term effects on sedge meadows*. U.S. Geological Survey Fact Sheet 2004-3027. United States Geological Survey, National Wetlands Research Center, Lafayette, Louisiana. 4 pp.
- Miller, J.R., M.D. Dixon, and M.G. Turner. 2005. Response of avian communities in large-river floodplain to environmental variation at multiple scales. *Ecological Applications* 14(5):1394–1410.
- Miller, M.M., K. Songer, and R. Dolen. 2014. *Field guide to Wisconsin streams: Plants, fishes, amphibians, and reptiles*. University of Wisconsin Press, Madison. 312 pp.
- Mills, J.E. 2008. Fifty years of change in Wisconsin cedar glades. *American Midland Naturalist* 159:214–224.
- Minnesota Department of Natural Resources (MDNR). 2003. *Field guide to the native plant communities of Minnesota: The Laurentian Mixed Forest Province*. Minnesota Department of Natural Resources, Ecological Land Classification Program, Minnesota

- County Biological Survey, and Natural Heritage and Nongame Research Program, St. Paul. 352 pp.
- Minnesota Department of Natural Resources (MDNR). 2005a. *Field guide to the native plant communities of Minnesota: The Eastern Broadleaf Forest Province*. Minnesota Department of Natural Resources, Ecological Land Classification Program, Minnesota County Biological Survey, and Natural Heritage and Nongame Research Program, St. Paul. 394 pp.
- Minnesota Department of Natural Resources (MDNR). 2005b. *Field guide to the native plant communities of Minnesota: The Prairie Parkland and Tallgrass Aspen Parklands Provinces*. Minnesota Department of Natural Resources, Ecological Land Classification Program, Minnesota County Biological Survey, and Natural Heritage and Nongame Research Program, St. Paul. 362 pp.
- Mladenoff, D.J., and J. Pastor. 1993. Sustainable forest ecosystems in the northern hardwood and conifer region: Concepts and management. Pages 145–180 in G.H. Aplet, J.T. Olson, N. Johnson, and V.A. Sample, editors. *Defining sustainable forestry*. The Wilderness Society, Island Press, Washington, D.C.
- Mladenoff, D.J., and F. Stearns. 1993. Eastern hemlock regeneration and deer browsing in the northern Great Lakes region: A re-examination and model simulation. *Conservation Biology* 7(4):88–90.
- Mladenoff, D.L., T. Sickle, L. Schulte, J. Rhemtulla, and J. Bollinger. 2009. *Wisconsin's land cover in the 1800s*. Wisconsin Department of Natural Resources, PUB-CE-4017 2009, Madison. Available online at <http://dnr.wi.gov>, keywords "Wisconsin's land cover in the 1800s."
- Mladenoff, D.J., M.A. White, J. Pastor, and T.R. Crow. 1993. Comparing spatial pattern in unaltered old-growth and disturbed forest landscapes. *Ecological Applications* 3:294–306.
- Mossman, M.J. 1988. Birds of southern Wisconsin floodplain forests. *The Passenger Pigeon* 50(4):321–337.
- Mossman, M.J., E.J. Epstein, and R.M. Hoffman. 1991. Birds of Wisconsin's pine and oak barrens. *The Passenger Pigeon* 53:137–163.
- Munger, M.G. 2008. *Cladonia* spp. In Fire Effects Information System. U.S. Forest Service web page. Available online at <https://www.feis-crs.org/feis/>.
- Murphy, P.A., and G.J. Nowacki. 1997. *An old-growth definition for xeric pine and pine-oak woodlands*. U.S. Forest Service, Southern Research Station, General Technical Report SRS-7, Asheville, North Carolina.
- National Council on Science for Sustainable Forestry. 2006. *Old-growth & extended rotation forests: Options for the future in the Lakes States*. National Council on Science and the Environment, Background readings from the National Council on Science for Sustainable Forestry Workshop, May 21–24, 2006, Boulder Junction, Wisconsin.
- National Council for Air and Stream Improvement, Inc. (NCASI). 2005. *Defining old-growth in Canada and identifying wildlife habitat in old-growth boreal forest stands*. National Council for Air and Stream Improvement, Inc., Technical Bulletin No. 909. Research Triangle Park, North Carolina.
- Nekola, J.C. 1994. The environment and vascular flora of northeastern Iowa fen communities. *Rhodora* 96:121–169.
- Nekola, J.C. 2004. Vascular plant compositional gradients within and between Iowa fens. *Journal of Vegetation Science* 15(6):771–780.
- Nelson, P.W. 2005. *The Terrestrial Natural Communities of Missouri*. Revised Edition. The Missouri Natural Areas Committee, Jefferson City, Missouri.
- Nichols, S.A. 1999. *Distribution and habitat descriptions of Wisconsin lake plants*. Wisconsin Geological and Natural History Survey, Madison.
- Nichols, S.A., and J.G. Vennie. 1991. *Attributes of Wisconsin lake plants*. Wisconsin Geological and Natural History Survey, Information Circular 73. Madison. 19 pp.
- Nielsen, S.E., and A. Haney. 1998. Gradient responses for understory species in a bracken-grassland and northern-dry forest ecosystem of northeast Wisconsin. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 86:149–166.
- Nielsen, S.E., and A. Haney. 2003. Vegetation composition, dynamics, and management of a bracken-grassland and northern dry forest ecosystem. *Environmental Management* 31:810–821.
- Nielsen, S.E., C. Kirschbaum, and A. Haney. 2003. Restoration of midwest oak barrens: Structural manipulation or process only? *Conservation Ecology* 7(2):10. Available online at <https://www.ecologyandsociety.org/vol7/iss2/art10/main.html>.
- Niemuth, N.D., and M.S. Boyce. 1998. Disturbance in Wisconsin pine barrens: Implications for management. *Transactions of the Wisconsin Academy of Sciences, Arts, and Letters* 86:167–176.
- Niemuth, N.D., and M.S. Boyce. 2004. Influence of landscape composition on sharp-tailed grouse lek location and attendance in Wisconsin. *Ecoscience* 11:209–217.
- Nilsson, C., and K. Berggren. 2000. Alteration of riparian ecosystems caused by river regulation. *Bioscience* 50:783–792.
- Noble, M.G. 1979. The origin of *Populus deltoides* and *Salix interior* zones on point bars along the Minnesota River. *American Midland Naturalist* 102:58–67.
- Novitzki, R.P. 1979. Hydrologic characteristics of Wisconsin's wetlands and their influence on floods, stream flow, and sediment. Pages 377–388 in P.E. Greeson, J.R. Clark, and J.E. Clark, editors. *Wetland functions and values: The state of our understanding*. American Water Resources Association, Minneapolis.
- Nowacki, G.J., and M.D. Abrams. 2008. The demise of fire and the "mesophication" of forests in the eastern United States. *BioScience* 58(2):123–138.
- Nuzzo, V.A. 1986. Extent and status of Midwest oak savanna: Pre-settlement and 1985. *Natural Areas Journal* 6:6–36.
- Nuzzo, V. 1996. Structure of cliff vegetation on exposed cliffs and the effect of rock climbing. *Canadian Journal of Botany* 74:607–617.
- O'Connor, R.P., M. Kost, and J. Cohen. 2009. *Prairies and savannas in Michigan: Rediscovering our natural heritage*. Michigan State Press, East Lansing. 139 pp.
- Packard, S. 1988. Just a few oddball species: Restoration and the rediscovery of the tallgrass savanna. *Restoration and Management Notes* 6(1):13–22.
- Packard, S. 1993. Restoring oak ecosystems. *Restoration and Management Notes* 11:5–16.
- Packard, S., and C.F. Mutel, editors. 1997. *The tallgrass prairie restoration handbook: For prairies, savannas, and woodlands*. Island Press, Washington, D.C. 464 pp.
- Palik, B., D. Streblov, L. Egeland, and R. Buech. 2007. Landscape variation of seasonal pool plant communities in forests of northern Minnesota, USA. *Wetlands* 27:12–23.
- Paull, R.A., and R.K. Paull. 1977. *Geology of Wisconsin and Upper Michigan: Including parts of adjacent states*. Kendall/Hunt Publishing Company, Dubuque, Iowa. 232 pp.
- Peach, M., and J. Zedler. 2006. How tussocks structure sedge meadow vegetation. *Wetlands* 26(2):322–335.
- Post, D.J. 1994. The plant communities of Nine-Mile Island – past and present. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 82:89–108.
- Powers, M. 2005. *Causal mechanisms and impacts of Pennsylvania sedge dominance in Wisconsin's northern hardwood forests*. M.S. Thesis, Michigan Technological University, Houghton, Michigan.
- Powers, M.D., and L.M. Nagel. 2008. Disturbance dynamics influence *Carex pensylvanica* abundance in a northern hardwood forest. *The Journal of the Torrey Botanical Society* 135:317–327.
- Pregitzer, K.S. 1990. The ecology of northern white-cedar. Pages 8–14 in D.O. Lantagne, editor. *Workshop proceedings for northern white-cedar in Michigan*. Michigan State University, East Lansing and Sault Ste. Marie, Michigan.
- Pregitzer, K.S., and S.C. Saunders. 1999. Jack pine barrens of the

- northern Great Lakes region. Pages 343–361 in R.C. Anderson, J.S. Fralish, and I.S. Baskin, editors. *Savannas, barrens, and rock outcrop plant communities of North America*. Cambridge University Press, Cambridge, U.K.
- Quinby, P.A. 1991. Self-replacement in old-growth white pine forests of Temagami, Ontario. *Forest Ecology and Management* 41:95–109.
- Radeloff, V.C., D.J. Mladenoff, and M.S. Boyce. 1999. Forest landscape change in northwest Wisconsin pine barrens from pre-European settlement to the present. *Canadian Journal of Forest Research* 29:1649–1659.
- Radeloff, V.C., D.J. Mladenoff, and M.S. Boyce. 2000. A historical perspective and future outlook on landscape scale restoration in the northwest Wisconsin pine barrens. *Restoration Ecology* 8:119–126.
- Radeloff, V.C., D.J. Mladenoff, K.L. Manies, and M.S. Boyce. 1998. Analyzing forest landscape restoration potential: Pre-settlement and current distribution of oak in the Northwest Wisconsin pine barrens. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 86:189–205.
- Ralston, J.L., and J. Cook. 2013. Impact of prescribed fire, timber removal, and the seed bank on understory plant diversity and canopy cover in an oak-pine barrens, central Wisconsin, USA. *Ecological Restoration* 31(4):395–411.
- Randle, J. 2006. Deer and sedge: Bottlenecks to seedling regeneration in northern hardwood forests. Potential restoration techniques aimed at reversing the effects. Presentation at Society of American Foresters Conference, Forests and Whitetails—striving for balance, June 9–10, 2005. Michigan Society of American Foresters, St. Ignace, Michigan.
- Reed, D.M., 1985. *Composition and distribution of calcareous fens in relation to environmental conditions in southeastern Wisconsin*. M.S. Thesis, University of Wisconsin–Milwaukee, Milwaukee.
- Reed, D.M. 2002. *Environmental correlates of vegetation types in southeastern Wisconsin fens*. Ph.D. Dissertation, University of Wisconsin–Milwaukee, Milwaukee.
- Reetz, M., S. Hull, S. Fandel, and S. Lutz. 2013. *Northwest Sands habitat corridor plan*. University of Wisconsin–Madison, Department of Forest and Wildlife Ecology, Madison. Available online at <http://dnr.wi.gov>, keywords “northwest sands habitat corridor.”
- Reinartz, J.A. 2003. *Vegetation of spring ephemeral ponds in the mesic forests of southeastern Wisconsin*. University of Wisconsin–Milwaukee Field Station Annual Report 2003:20.
- Rheinhardt, R., G. Hollands, A. Calhoun, and P. deMaynadier. 2007. Classification of vernal pools: geomorphic setting and distribution. Pages 11–29 in A.J.K. Calhoun and P.G. deMaynadier, editors. *Science and conservation of vernal pools in northeastern North America*. CRC Press, New York. 392 pp.
- Reschke, C., R. Reid, J. Jones, T. Feeney, and H. Potter. 1999. *Conserving Great Lakes alvars*. The Nature Conservancy, Great Lakes Program, Final Technical Report International Alvar Conservation Commission, Chicago. 230 pp.
- Reuter, D. 1986. Sedge meadows of the Upper Midwest: A stewardship abstract. *Natural Areas Journal* 6:27–34.
- Reznicek, A.A. 1994. The disjunct coastal plain flora in the Great Lakes region. *Biological Conservation* 68:203–215.
- Rheinhardt, R.D., and G.C. Hollands. 2007. Classification of vernal pools: Geomorphic setting and distribution. Pages 11–29 in A.J.K. Calhoun and P.G. deMaynadier. *Science and conservation of vernal pools in northeastern North America*. CRC Press, Boca Raton, Florida.
- Rich, P.L., L.E. Frelich, and P.B. Reich. 2007. Wind-throw mortality in the southern boreal forest: Effects of species, diameter, and stand age. *Journal of Ecology* 95:1261–1273.
- Richter, B.D., R. Mathews, D.L. Harrison, and R. Wigington. 2003. Ecologically sustainable water management: Managing river flows for ecological integrity. *Ecological Applications* 13:206–224.
- Robinson, W.A. 1980. *Fool hen: The spruce grouse on the Yellow Dog Plains*. University of Wisconsin Press, Madison, Wisconsin.
- Rodewald, A.D. 2003. Decline of oak forests and implications for forest wildlife conservation. *Natural Areas Journal* 23(4):368–371.
- Rogers, D.A., T.P. Rooney, and R.H. Henderson. 2008. From the prairie-forest mosaic to the forest: Dynamics of southern Wisconsin woodlands. Pages 91–101 in D.M. Waller and T.P. Rooney, editors. *The vanishing present: Wisconsin's changing lands, waters, and wildlife*. University of Chicago Press, Chicago.
- Rogers, R.S. 1981. Early spring herb communities in mesophytic forests of the Great Lakes region. *Ecology* 63(4):1050–1063.
- Rooney, T.P. 2001. Deer impacts on forest ecosystems: A North American perspective. *Forestry* 74:201–208.
- Rooney, T.P., S.L. Solheim, and D.M. Waller. 2002. Factors affecting the regeneration of northern white cedar in lowland forests of the Upper Great Lakes, USA. *Forest Ecology and Management* 163:119–130.
- Rooney, T.P., and D.M. Waller. 2003. Direct and indirect effects of white-tailed deer on forest ecosystems. *Forest Ecology and Management* 181:165–176.
- Rooney, T.P. 2009. High white-tailed deer densities benefit graminoids and contribute to biotic homogenization of forest ground-layer vegetation. *Plant Ecology* 202:103–111.
- Rooney, T.P., S.L. Solheim, and D.M. Waller. 2002. Factors influencing the regeneration of northern white cedar in lowland forests of the Upper Great Lakes region, U.S.A. *Forest Ecology and Management* 163:119–130.
- Rosgen, D.L. 1994. A classification of natural rivers. *Catena* 22:169–199.
- Rowe, J.S. 1972. *Forest regions of Canada*. Canadian Forestry Service, Department of the Environment, Publication No. 1300, Ottawa, Ontario. 172 pp.
- Rudis, V. 1995. Regional forest fragmentation effects on bottomland hardwood community types and resource values. *Landscape Ecology* 10(5):291–307.
- Runkle, J.R. 1982. Patterns of disturbance in some old-growth mesic forests of eastern North America. *Ecology* 63:1533–1546.
- Salk, T.E., L.E. Frelich, S. Sugita, R. Calcote, J. Ferrari, and R.A. Montgomery. 2011. Poor recruitment is changing the structure and species composition of an old-growth hemlock-hardwood forest. *Forest Ecology and Management* 261:1998–2006.
- Sample, D.W., and M.J. Mossman. 1997. *Managing habitat for grassland birds: a guide for Wisconsin*. Wisconsin Department of Natural Resources, Bureau of Integrated Science Services, Madison.
- Sapper, B. 2008. St. Louis River freshwater estuary. *Wisconsin Great Lakes Chronicle*, pp. 2–3.
- Schaefer, C.A., and D.W. Larson. 1997. Vegetation, environmental characteristics, and ideas on the maintenance of alvars on the Bruce Peninsula, Canada. *Journal of Vegetation Science* 8:797–810.
- Scheffer, M. 2001. *Ecology of shallow lakes*. Kluwer Academic Publishers, Boston. 367 pp.
- Schmude, K.L. 2012. *Aquatic macroinvertebrate biotic field surveys and taxonomy: Ephemeral ponds in northern Wisconsin*. Report submitted by the Lake Superior Research Institute, UW-Superior, to Wisconsin Department of Natural Resources, Bureau of Endangered Resources, Madison.
- Schrank, A.J., S.C. Resh, W.J. Previant, and R.J. Chimner. 2015. Characterization and classification of vernal pool vegetation, soil, and amphibians of Pictured Rocks National Lakeshore. *American Midland Naturalist* 174:161–179.
- Schulte, L.A., and D.J. Mladenoff. 2001. The original U.S. public land survey records: Their use and limitations in reconstructing pre-European settlement vegetation. *Journal of Forestry* 99:5–10.
- Semlitsch, R.D., and J.R. Bodie. 1998. Are small isolated wetlands expendable? *Conservation Biology* 12:1129–1133.
- Silver, E.J., A.W. D'Amato, S. Fraver, B.J. Palik, and J.B. Bradford. 2013. Structure and development of old-growth, unmanaged second-

- growth, and extended rotation *Pinus resinosa* forests in Minnesota, USA. *Forest Ecology and Management* 291:110–118.
- Simard, A.J., and R.W. Blank. 1982. Fire history of a Michigan jack pine forest. *Michigan Academician* 15:59–71.
- Singer, D.K., S.T. Jackson, B.J. Madsen, and D.A. Wilcox. 1996. Differentiating climatic and successional influences on long-term development of a marsh. *Ecology* 77:1765–1778.
- Singer, M.T., and C.G. Lorimer. 1997. Crown release as a potential old-growth restoration approach in northern hardwoods. *Canadian Journal of Forest Research* 27:1222–1232.
- Skawinski, P.M. 2010. Aquatic plants of Wisconsin: A photographic field guide to submerged and floating-leaf aquatic plants. Self-published by the author at Lakeplants@yahoo.com.
- Skawinski, P.M. 2014. *Aquatic plants of the Upper Midwest: A photographic field guide to our underwater forests*. Second edition. Self-published by the author at Lakeplants@yahoo.com. Also available through University of Wisconsin Extension at <http://www.uwsp.edu/cnr-ap/UWEXLakes/Pages/resources/book-store/APUM.aspx>.
- Southeastern Wisconsin Regional Planning Commission (SEWRPC). 1997. *A regional natural areas and critical species habitat protection and management plan for southeastern Wisconsin*. Southeastern Wisconsin Regional Planning Commission, Planning Report No. 42, Waukesha, Wisconsin.
- Sparks, R. 1995. Need for ecosystem management of large rivers and their floodplains. *BioScience* 45(3):168–182.
- Stanturf, J.A., S.H. Schoenholtz, C.J. Schweitzer, and J.P. Shepard. 2001. Achieving restoration success: Myths in bottomland hardwood forests. *Restoration Ecology* 9:189–200.
- Stearns, F.W. 1997. History of the lake states forests: Natural and human impacts. Pages 8–29 in H.H. Webster and J.M. Vasievich, editors. *Lake States Regional Forest Resources Assessment*. Technical Papers, General Technical Report NC-189, U.S. Forest Service, North Central Forest Experiment Station, St. Paul.
- Stearns, F., and G.R. Guntenspergen. 1987. Presettlement forests of the lake states and major forest types of the lake states. Maps. In W.E. Shands, editor. *The Lake States forest: a resources renaissance*. Report and Proceedings of the Great Lakes Governors' Conference on Forestry, April 9–10, 1987, Minneapolis.
- Stearns, F., and G.E. Likens. 2002. One hundred years of recovery of a pine forest in northern Wisconsin. *American Midland Naturalist* 148(1):2–19.
- Steele, K., and P. Hartman. 2015a. *Ecological site description identification number 105XY001: Dolomite Colluvium Bluff Prairie*. U.S. Department of Agriculture, Natural Resources Conservation Service, St. Paul. 49 pp.
- Steele, K., and P. Hartman. 2015b. *Ecological site description, identification number 105XY002: Sandstone Colluvium Bluff Prairie*. U.S. Department of Agriculture, Natural Resources Conservation Service, St. Paul. 49 pp.
- Steele, Y. 2012. Oak habitat page. In K. Kreitinger, Y. Steele, and A. Paulios, editors. *The Wisconsin All-Bird Conservation Plan*, Version 2.0, Wisconsin Bird Conservation Initiative, Wisconsin Department of Natural Resources, Madison.
- Stewart, J., L. Wang, J. Lyons, J. Horwath, and R. Bannerman. 2001. Influence of watershed, riparian corridor, and reach scale characteristics on aquatic biota in agricultural watersheds. *Journal of the American Water Resources Association* 37(6):1475–1487. doi:10.1111/j.1752-1688.2001.tb03654.x.
- Stocks, B.J. 1989. Fire behavior in mature jack pine. *Canadian Journal of Forest Research* 19:783–790.
- Stout, A.B. 1946. The bur oak openings of southern Wisconsin. *Transactions of the Wisconsin Academy of Science, Arts and Letters* 36:141–161.
- Strayer, D.L., and S.E.G. Findlay. 2010. Ecology of freshwater shore-zones. *Aquatic Sciences* 72:127–163.
- Swanson, M.E., J.L. Franklin, R.L. Beschta, C.M. Cristafulli, D.A. DellaSala, R.L. Hutto, D.B. Lindenmayer, and F.J. Swanson. 2011. The forgotten stage of forest succession: Early-successional ecosystems on forest sites. *Frontiers in Ecology and the Environment* 9(2):117–125.
- Swindale, D., and J. Curtis. 1957. Phytosociology of the larger submerged plants in Wisconsin lakes. *Ecology* 38:397–407.
- Tanner, J.T., and P.B. Hamel. 2001. A long-term view of old-growth deciduous forests. Pages 106–109 in P.B. Hamel and T.L. Foti, editors. *Bottomland hardwoods of the Mississippi Alluvial Valley: Characteristics and management of natural function, structure, and composition*. U.S. Forest Service, General Technical Report SRS-42, Asheville, North Carolina. 109 pp.
- Theler, J. 1997. The modern terrestrial gastropod (land snail) fauna of western Wisconsin hill prairies. *Nautilus* 110(4):111–121.
- The Nature Conservancy. 1997. *A classification framework for freshwater communities: Proceedings of The Nature Conservancy's aquatic community classification workshop*. The Nature Conservancy Great Lakes Program Office, Chicago.
- Thomson, J.W. 1940. Relic prairie areas in central Wisconsin. *Ecological Monographs* 10(4):685–717.
- Turner, M.G., S.E. Gergel, M.D. Dixon, and J.R. Miller. 2004. Distribution and abundance of trees in the floodplain forests of the Wisconsin River: Environmental influences at different scales. *Journal of Vegetation Science* 15:729–738.
- Tyrrell, L.E., and T.R. Crow. 1994a. Dynamics of dead wood in old-growth hemlock-hardwood forests of northern Wisconsin and northern Michigan. *Canadian Journal of Forest Research* 24:1672–1683.
- Tyrrell, L.E., and T.R. Crow. 1994b. Structural characteristics of old-growth hemlock-hardwood forests in relation to age. *Ecology* 75(2):370–386.
- Van Deelen, T.R. 1999. Deer-cedar interactions during a period of mild winters: Implications for conservation of swamp deer yards in the Great Lakes region. *Natural Areas Journal* 19:263–265.
- Van der Valk, A.G., T.L. Brenholm, and E. Gordon. 1999. The restoration of sedge meadows: Seed viability, seed germination requirements and seedling growth of *Carex* species. *Wetlands* 19:756–764.
- Vernier, L.A., and J.L. Pearce. 2005. Boreal bird community response to jack pine forest succession. *Forest Ecology and Management* 217:19–36.
- Verry, E.S., J.W. Hornbeck, and C.A. Dolloff, editors. 2000. *Riparian management in forests of the continental United States*. Lewis Publishers, CRC Press, Boca Raton, Florida. 432 pp.
- Vitt, D.H., H. Crum, and J.A. Snider. 1975. The vertical zonation of Sphagnum species in hummock-hollow complexes in northern Michigan. *Michigan Botanist* 14(4):190–200.
- Vitt, D.H., and N.B. Slack. 1984. Niche diversification of Sphagnum relative to environmental factors in northern Minnesota peatlands. *Canadian Journal of Botany* 62:1409–1430.
- Vogl, R.J. 1964a. The effects of fire on a muskeg in northern Wisconsin. *Journal of Wildlife Management* 28(2):317–329.
- Vogl, R.J. 1964b. The effects of fire on the vegetational composition of bracken grasslands. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 53:67–82.
- Vogl, R.J. 1970. Fire and northern Wisconsin pine barrens. Pages 175–209 in *Proceedings of the 10th annual Tall Timbers Fire Ecology Conference: a quest for ecological understanding*. Tall Timbers Research, Inc., Tallahassee, Florida.
- Vora, R.S. 1993. Moquah barrens: Pine barrens restoration experiment initiated in the Chequamegon National Forest. *Restoration and Management Notes* 11(1):39–44.
- Walker, J.F., P.C. Hanson, and G.J. Hunt. 2013. Hydrologic and lake quality modeling. Pages 21–59 in M.W. Meyer, J.F. Walker, K.P. Kenow, P.W. Rasmussen, P.J. Garrison, P.C. Hanson, and R.J. Hunt. *Potential*

- effects of climate change On inland glacial lakes and implications for lake-dependent biota. Focus on Energy, Upper Midwest Environmental Sciences Center, Environmental and Economic Research and Development Program, Final Report, Madison.
- Wang, L., J. Lyons, P. Kanehl, and R. Bannerman. 2001. Impacts of urbanization on stream habitat and fish across multiple spatial scales. *Environmental Management* 28:255–266.
- Wang, L., J. Lyons, P. Kanehl, and R. Gatti. 1997. Influences of watershed land use on habitat quality and biotic integrity in Wisconsin streams. *Fisheries* 22(6):6–12.
- Waller, D.M., and T.P. Rooney, editors. 2008. *The vanishing present: Wisconsin's changing lands, waters, and wildlife*. University of Chicago Press, Chicago. 507 pp.
- Ward, J.V. 1998. Riverine landscapes: Biodiversity patterns, disturbance regimes, and aquatic conservation. *Biological Conservation* 83:269–278.
- Weigel, B.M. 2003. Development of stream macroinvertebrate models that predict watershed and local stressors in Wisconsin. *Journal of the North American Benthological Society* 22:123–144.
- Weitzel, R.E., M.L. Khoury, P. Gagnon, D. Grossman, and J. Higgins. 2003. *Conservation priorities for freshwater biodiversity in the Upper Mississippi River basin*. NatureServe and The Nature Conservancy, Arlington, Virginia.
- Werner, K.J., and J. Zedler. 2002. How sedge meadow soils, microtopography, and vegetation respond to sedimentation. *Wetlands* 22:481–466.
- West, P., and J. Welsh. 1998. *Characterization of unglaciated quartzite bedrock glades in the Baraboo Hills of Wisconsin*. The Nature Conservancy, Wisconsin Field Office, Madison. 19 pp.
- Wetmore, C.M. 1990. Lichens of Apostle Islands National Lakeshore. *Michigan Botanist* 29:65–73.
- Wetter, M.A., T.S. Cochrane, M.R. Black, H.I. Iltis, and P.E. Berry. 2001. *Checklist of the vascular plants of Wisconsin*. Wisconsin Department of Natural Resources, Technical Bulletin 192, Madison. 259 pp.
- Wetzel, R.G. 2001. *Limnology: Lake and river ecosystems*. Third edition. Academic Press, San Diego, California.
- White, A.S. 1986. *Prescribed burning for oak savanna restoration in central Minnesota*. U.S. Forest Service, North Central Forest Experiment Station, Research Paper NC-266, St. Paul. 12 pp.
- White, D.L., and F.T. Lloyd. 1998. *An old-growth definition for dry and dry-mesic oak-pine forests*. U.S. Forest Service, Southern Research Station, General Technical Report SRS-23, Bent Creek, North Carolina.
- White, K.L. 1965. Shrub-carrs of southeastern Wisconsin. *Ecology* 46(3):286–304.
- White, M.A., and D.J. Mladenoff. 1994. Old-growth forest landscape transitions from pre-European settlement to present. *Landscape Ecology* 9:191–205.
- Wiegmann, S.M., and D.M. Waller. 2006. Biotic homogenization in forest understories: Identity and traits of historical “winners” and “losers.” *Biological Conservation* 129:109–123.
- Wiik, E., H. Bennion, C.D. Sayer, T.A. Davidson, S.J., Clarke, S. McGowan, S. Prentice, G.L. Simpson, and L. Stone. 2015. The coming and going of a marl lake: Multi-indicator paleolimnology reveals abrupt ecological change and alternative views of reference conditions. *Frontiers in Ecological Evolution* 3:82.
- Wiik, E., H. Bennion, C.D. Sayer, and N.J. Wilby. 2013. Chemical and biological responses of marl lakes to eutrophication. *Freshwater Review* 6:35–62. doi:10.1608/FRJ-6.2.630.
- Wilcox, D.A. 1995. Wetland and aquatic macrophytes as indicators of anthropogenic hydrologic disturbance. *Natural Areas Journal* 15:240–48.
- Williamson, L.S. L.A. Dlutkowski, and A.P. McCammon Soltis, editors. 1999. *Proceedings of the Wild Rice Research and Management Conference 7–8 July, 1999, Carlton, Minnesota*. Great Lakes Indian Fish and Wildlife Commission, Odanah, Wisconsin.
- Will-Wolf, S., and F. Stearns. 1999. Dry soil oak savanna in the Great Lakes region. Pages 135–154 in R.C. Anderson, J.S. Fralish, and J.M. Baskin, editors. *Savannas, barrens, and rock outcrop plant communities of North America*. Cambridge University Press, Cambridge, U.K. 480 pp.
- Wisconsin Department of Agriculture (WDA). 1930–1947. Wisconsin land economic inventory (Bordner surveys). The University of Wisconsin Digital Collections, Ecology and Natural Resources Collection, Madison. Available online at <https://uwdc.library.wisc.edu/collections/econatres/wilandinv/>.
- Wisconsin Department of Agriculture, Trade, and Consumer Protection (WDATCP). 2016. Wisconsin's emerald ash borer information source. Website. Available online at <http://datcpservices.wisconsin.gov/eab/article.jsp?topicid=25>. Updated Sept. 30, 2016.
- Wisconsin Department of Natural Resources (WDNR). 2000. *Biotic inventory and analysis of the Wolf River basin: An interim report*. Wisconsin Department of Natural Resources, Bureau of Endangered Resources, Natural Heritage Inventory, Madison.
- Wisconsin Department of Natural Resource (WDNR). 2001. *Wisconsin's Northern State Forest Assessments: Community restoration and old growth on the Northern Highland-American Legion State Forest*. Wisconsin Department of Natural Resources, PUB-FR-139b. Madison. 185 pp.
- Wisconsin Department of Natural Resources (WDNR). 2006. *Old-growth and old forests handbook*. Wisconsin Department of Natural Resources, Handbook 2480.5, Madison, Wisconsin.
- Wisconsin Department of Natural Resources (WDNR). 2010. *State Natural Areas Handbook*. Chapter 100.60, Oak Savanna State Natural Area management guide (Oak Opening, Oak Woodland, Oak Barrens). Wisconsin Department of Natural Resources, Madison.
- Wisconsin Department of Natural Resources (WDNR). 2011a. *Silviculture and forest aesthetics handbook*. Chapter 41, oak. Wisconsin Department of Natural Resources, Division of Forestry, Handbook 2431.5, Madison, Wisconsin. 95 pp.
- Wisconsin Department of Natural Resources (WDNR). 2011b. *State Natural Areas Handbook*. Chapter 100.61, Barrens State Natural Area Management Guide (Pine Barrens, Oak Barrens, Sand Barrens, and Bracken Grasslands). Wisconsin Department of Natural Resources, Madison.
- Wisconsin Department of Natural Resources (WDNR). 2015. *2015–2025 Wisconsin Wildlife Action Plan*. Wisconsin Department of Natural Resources, PUB-NH-938, Madison.
- Wisconsin Department of Natural Resources (WDNR). 2016a. Emerald ash borer. Web page. Available online at <http://dnr.wi.gov/topic/foresthhealth/emeraldashborer.html> or <http://dnr.wi.gov/>, keywords “emerald ash borer.”
- Wisconsin Department of Natural Resources (WDNR). 2016b. *Silviculture and forest aesthetics handbook*. Chapter 33, jack pine. Wisconsin Department of Natural Resources, Division of Forestry, Handbook 2431.5, Madison.
- Wisconsin Department of Natural Resources (WDNR). 2016c. *Wisconsin Natural Heritage Working List*. Wisconsin Department of Natural Resources, Madison. Available online at <http://dnr.wi.gov/>, keywords “working list.”
- Wisconsin Geological and Natural History Survey (WGNHS). 2013. Website and maps for Wisconsin springs. Web page. Available online at <http://wgnhs.uwex.edu/water-environment/springs/> OR <http://wgnhs.uwex.edu/>, “Water and Environment” link then “Springs” link.
- Wisconsin Initiative on Climate Change Impacts (WICCI). 2009. Central Sands Hydrology Working Group web page. Available online at <http://www.wicci.wisc.edu/central-sands-hydrology-working-group.php>.
- Wisconsin Initiative on Climate Change. 2010. Water Resources Working Group report. Available online at <http://wicci.wisc.edu/report/Water-Resources.pdf>.

- Wisconsin Stopover Initiative. 2011. Identified stopover sites in the Great Lakes basins of Wisconsin. Website. Available online at <http://wisconsinbirds.org/migratory/sites.html>.
- Wood, E.M., A.M. Pidgeon, Feng Liu, and D.J. Mladenoff. 2012. Birds see the tree inside the forest: The potential impacts of changes in forest composition on songbirds during spring migration. *Forest Ecology and Management* 280:176–186.
- Woods, K.D., and M.B. Davis. 1987. Paleoeecology of range limits: Beech in the upper peninsula of Michigan. *Ecology* 70:681–696.
- Wright, H.E., B.A. Coffin, and N.E. Aaseng, editors 1992. *The patterned peatlands of Minnesota*. University of Minnesota Press, Minneapolis.
- Zedler, P.H. 2003. Vernal pools and the concept of “isolated wetlands.” *Wetlands* 23:597–607.
- Ziegler, S.S. 1995. Relict eastern white pine (*Pinus strobus* L.) stands in southwestern Wisconsin. *American Midland Naturalist* 133:88–100.

Recommended Readings Pertinent to the Description and Classification of Vegetation in Wisconsin and Other Parts of the Upper Midwest

- Abrams, M.D. 1992. Fire and the development of oak forests. *BioScience* 42(5):346–353.
- Abrams, M.D. 1998. The red maple paradox. *BioScience* 48:355–364.
- Abrams, M.D. 2003. Where has all the white oak gone? *BioScience* 53:927–934.
- Abrams, M.D. 2005. Prescribing fire in eastern oak forests: Is time running out? *Northern Journal of Applied Forestry* 22:190–196.
- Abrams, M.D., and D.I. Dickmann. 1981. Early revegetation of clear-cut jack pine sites in northern Lower Michigan. *Canadian Journal of Botany* 60:946–954.
- Abrams, M.D., D.G. Sprugel, and D.I. Dickmann. 1985. Multiple successional pathways in recently disturbed jack pine sites in Michigan. *Forest Ecology and Management* 10:31–48.
- Albert, D.A. 2000. *Borne of the wind: An introduction to the ecology of Michigan sand dunes*. Michigan State University Extension, Michigan Natural Features Inventory, Lansing, Michigan. 63 pp.
- Albert, D. 2003. *Between land and lake: Michigan's Great Lakes coastal wetlands*. Michigan State University Extension, Michigan Natural Features Inventory, Extension Bulletin E-2902, East Lansing, Michigan. 96 pp.
- Albert, D., and P. Comer. 2008. *Atlas of early Michigan's forests, grasslands, and wetlands: An interpretation of the 1816–1856 General Land Office surveys*. Michigan State University Press, Michigan Natural Features Inventory, East Lansing, Michigan. 107 pp.
- Albert, D., P. Comer, D. Cuthrell, D. Hyde, W. MacKinnon, M. Penskar, and M. Rabe. 1997. *Great Lakes bedrock shores of Michigan*. Michigan Natural Features Inventory, Lansing, Michigan. 58 pp.
- Alexander, D.G. 1976. Ecological aspects of the temporary annual pool fauna. Pages 32–36 in S. Jain, editor. *Vernal pools, their ecology and conservation*. University of California Davis, Institute of Ecology, Publication No. 9, Davis, California.
- Alverson, W.S., and D.M. Waller. 1997. Deer populations and the widespread failure of hemlock regeneration in northern forests. Pages 290–297 in W. McShea and J. Rappole, editors. *The science of overabundance: Deer ecology and population management*. Smithsonian Institution Press, Washington, D.C.
- Alverson, W.S., D.M. Waller, and S.L. Solheim. 1988. Forests too deer: Edge effects in northern Wisconsin. *Conservation Biology* 2:348–358.
- Amon, J.P., C.A. Thompson, Q.J. Carpenter, and J. Miner. 2002. Temperate zone fens of the glaciated Midwestern USA. *Wetlands* 22(2):301–317.
- Amoros, C., and G. Bornette. 2002. Connectivity and complexity in waterbodies of riverine floodplains. 2002. *Freshwater Biology* 47:761–776.
- Anderson, C., L. Ayers, T. Bergeson, and W.A. Smith. 2008. *Biodiversity in selected natural communities related to global climate change*. Wisconsin Department of Natural Resources, Bureau of Endangered Resources, Final Report to Wisconsin Focus on Energy, Environmental Research Program, Madison, Wisconsin.
- Anderson, O. 1954. *The phytosociology of dry lime prairies in Wisconsin*. Ph.D. thesis, University of Wisconsin-Madison, Madison.
- Anderson, P., and B. Palik. 2011. *Regional examples of silvicultural adaptation strategies: Western Great Lakes mixed-pine forest ecosystem*. U.S. Forest Service, Climate Change Resource Center. Available online at <https://www.fs.usda.gov/ccrc/topics/silviculture/western-great-lakes>.
- Anderson, R.C., and M.L. Bowles. 1999. Deep-soil savannas and barrens of the Midwestern United States. Pages 155–170 in R.C. Anderson, J.S. Fralish, and J.M. Baskin, editors. *Savannas, barrens, and rock outcrop communities of North America*. Cambridge University Press, Cambridge, U.K. 480 pp.
- Anderson, R.C., J.S. Fralish, and J.M. Baskin. 1999. *Savannas, barrens, and rock outcrop plant communities of North America*. Cambridge University Press, New York.
- Angermeier, P.L., and I. J. Schlosser. 1995. Conserving aquatic diversity: Beyond species and populations. *American Fisheries Society Symposium* 17:402–414.
- Anich, N.M. 2014. Ground foraging by typically arboreal passerines during the cold spring of 2013. *The Passenger Pigeon* 76(1):89–95.
- Anich, N.M., M. Worland, and K.J. Martin. 2013. Habitat use by spruce grouse in northern Wisconsin. *The Wildlife Society Bulletin* 37(4):766–777.
- Augustine, D.J., and D. deCalesta. 2003. Defining deer overabundance and threats to forest communities: from individual plants to landscape structure. *Ecoscience* 10:472–486.
- Baker, M.E., and B.V. Barnes. 1998. Landscape ecosystem diversity of river floodplains in northwest Lower Michigan, U.S.A. *Canadian Journal of Forest Research* 28:1405–1418.
- Barnes, B.V., and W.H. Wagner Jr. 2004. *Michigan trees: a guide to the trees of the Great Lakes region*. The University of Michigan Press, Ann Arbor.
- Barnes, W.J. 1978. The distribution of floodplain herbs as influenced by annual flood elevation. *Wisconsin Academy of Sciences, Arts and Letters* 66:254–266.
- Bayley, P.B. 1995. Understanding large river-floodplain ecosystems. *BioScience* 45:153–158.
- Bedford, B.L., and K.S. Godwin. 2003. Fens of the United States: Distribution, characteristics, and scientific connections versus legal isolation. *Wetlands* 23(3):608–629.
- Belk, D. 1998. Global status and trends in ephemeral pool invertebrate conservation: Implications for California fairy shrimp. Pages 147–150 in C.W. Witham, E.T. Bauder, D. Belk, W.R. Ferren, Jr., and R. Ornduff, editors. *Ecology, conservation, and management of vernal pool ecosystems: Proceedings from a 1996 conference*. California Native Plant Society, Sacramento, California.
- Bennett, J.P., T.A. Cochrane, T.L. Eddy, N.A. Harriman, R.B. Kahl, D.W. White, L.M. White, and L.J. Yahr. 2008. *Provisional vascular plant and lichen checklists of Red Banks Alvar, Brown County, Wisconsin*. Botanical Club of Wisconsin report to Wisconsin Department of Natural Resources, Bureau of Endangered Resources, Madison.
- Berenthal, T.W., D.E. Winston, J. Kline, and M. Linton. 2014. *Accuracy assessment of ephemeral pond wetlands mapping in southeastern Wisconsin: Wisconsin Ephemeral Ponds Project (WEPP)*. Wisconsin

- Department of Natural Resources, Final Report to USEPA, Region V Wetland Grant No. CD 00E78201, Madison. 28 pp.
- Best, J.A. 2015. *Restoration of headwater and coastal fens in the Lake Superior basin of Upper Michigan*. Ph.D. Dissertation, Michigan Technological University, Houghton, Michigan.
- Bielefeldt, J., M.J. Mossman, E. Epstein, and B. Bubb. 2003. New distributional records for summer birds in southern Wisconsin conifer swamps. *Passenger Pigeon* 65(4):213–232. (Note: Includes descriptive material on southern Wisconsin tamarack forests.)
- Bohlen, P.J., P.M. Groffman, T.J. Fahey, M.C. Fisk, E. Suarez, D.M. Pelletier, and R.T. Fahey. 2004. Earthworm invasion of forest ecosystems: Ecosystem consequences of exotic earthworm invasion of north temperate forests. *Ecosystems* 7(1):1–12.
- Borgerding, E.A., G.A. Bartelt, and W.M. McCown. 1995. *The future of pine barrens in northwestern Wisconsin: A workshop summary*. Wisconsin Department of Natural Resources, PUBL-RS-913-94, Madison. 105 pp.
- Bowles, M.L., K.A. Jacobs, and J.L. Mengler. 2007. Long-term changes in an oak forest's woody understory and herb layer with repeated burning. *Journal of the Torrey Botanical Society* 134(2):223–237.
- Bowles, M.L., and J.L. McBride. 1998. Vegetation composition, structure, and chronological change in a decadent midwestern North American oak savanna. *Natural Areas Journal* 18:14–27.
- Brawn, J.D. 2006. Effects of restoring oak savannas on bird communities and populations. *Conservation Biology* 20(2):460–469.
- Bray, J.R. 1958. The distribution of savanna species in relation to light intensity. *Canadian Journal of Botany* 36:671–681.
- Bray, J.R. 1960. The composition of savanna vegetation in Wisconsin. *Ecology* 41(4):721–732.
- Braun, E.L. 1950. *The deciduous forests of eastern North America*. Blakiston Publishing Company, Philadelphia.
- Broch, E.S. 1965. Mechanisms of adaptation of the fairy shrimp *Chirocephalus bundyi* Forbes to the temporary pond. *Cornell University Agricultural Experiment Station Memoirs* 392:1–48.
- Bronny, C. 1989. One-two punch: Grazing history and recovery potential of oak savannas. *Restoration and Management Notes* 7:73–76.
- Brown, R.T., and J.T. Curtis. 1952. The upland conifer-hardwood forests of northern Wisconsin. *Ecological Monographs* 22:217–234.
- Brownell, V.R., and J.L. Riley. 2000. *The alvars of Ontario: Significant alvar natural areas in the Ontario Great Lakes region*. Federation of Ontario Naturalists, Don Mills, Ontario. 219 pp.
- Brugam, M.B., M. Giorgi, C. Sesvold, S.M. Johnson, and R. Almos. 1997. Holocene vegetation history in the Sylvania Wilderness Area of the western Upper Peninsula of Michigan. *American Midland Naturalist* 137:62–71.
- Burne, M.R., and C.R. Griffin. 2005. Protecting vernal pools: A model from Massachusetts, USA. *Wetlands Ecology and Management* 13:357–375.
- Calhoun, A.J., and P.G. deMaynadier. 2008. *Science and conservation of vernal pools in northeastern North America*. CRC Press, New York. 363 pp.
- Cameron, E.K., and E.M. Bayne. 2009. Road age and its importance in earthworm invasion of northern boreal forests. *Journal of Applied Ecology* 46:28–36.
- Canham, C.D., and O.L. Loucks. 1984. Catastrophic windthrow in the presettlement forests of Wisconsin. *Ecology* 65:803–809.
- Carpenter, Q.C. 1995. *Toward a new definition of calcareous fen for Wisconsin*. Ph.D. Dissertation, University of Wisconsin-Madison, Madison. 592 pp.
- Casanova, M.T., and M.A. Brock. 2000. How do depth, duration, and frequency of flooding influence the establishment of wetland plant communities. *Plant Ecology* 147:237–250.
- Castleberry, S.B., W.P. Smith, W.M. Ford, and K.V. Miller. 2005. Herbivory and gap regeneration in southern bottomland hardwood forests. Pages 143–154 in L. Fredrickson, editor. *Proceedings of the symposium on ecology and management of bottomland hardwood systems: The state of our understanding*. University of Missouri Press, Columbia, Missouri.
- Catling, P.M., and V.R. Brownell. 1995. A review of alvars in the Great Lakes region: Distribution, floristic composition, biogeography, and protection. *Canadian Field Naturalist* 109:143–171.
- Catling, P.M., and V.R. Brownell. 1999. Alvars of the Great Lakes region. Pages 375–391 in R.C. Anderson, J.S. Fralish, and J.H. Baskin, editors. *Savannas, barrens, and rock outcrop plant communities of North America*. Cambridge University Press, Cambridge, U.K. 480 pp.
- Center for Watershed Protection. 2003. *Impacts of impervious cover on aquatic systems*. Watershed Protection Research Monograph No. 1, Center for Watershed Protection, Ellicott City, Maryland.
- Christensen, E.M., J.J. Clausen, and J.T. Curtis. 1959. Phytosociology of the lowland forests of northern Wisconsin. *American Midland Naturalist* 62:232–247.
- Christy, J. 1982. Unpublished mosses data based on collections and housed in files of the State Natural Areas program, Bureau of Endangered Resources, Wisconsin Department of Natural Resources, Madison.
- Christy, J.A., M.J. Dibben, F.J. Bowers, and R.E. Andrus. 1986. Ten mosses new to Wisconsin. *Evansia* 3:12–13.
- Christy, J.A., and T.A. Meyer. 1991. Bryophytes of Algific Talus Slopes in Wisconsin's Driftless Area. *Rhodora* 93:242–247.
- Clausen, J.J. 1957. A phytosociological ordination of the conifer swamps in Wisconsin. *Ecology* 38:638–648.
- Clayton, L., and J.W. Attig. 1989. *Glacial Lake Wisconsin*. The Geological Society of America, Geological Society of America Memoir 173, Boulder, Colorado. 80 pp.
- Cleland, D.T., P.E. Avers, W.H. McNab, M.E. Jensen, R.G. Bailey, T. King, and W.E. Russell. 1997. National Hierarchical Framework of Ecological Units. Pages 181–200 in M.S. Boyce and A. Haney, editors. *Ecosystem management applications for sustainable forest and wildlife resources*. Yale University Press, New Haven, Connecticut.
- Cochrane, T.S., K. Elliot, and C.S. Lipke. 2008. *Prairie plants of the University of Wisconsin-Madison Arboretum*. Second printing. University of Wisconsin Press, Madison. 366 pp.
- Colburn, E.A. 2004. *Vernal pools: Natural history and conservation*. McDonald and Woodward Publishing Company, Blacksburg, Virginia. 426 pp.
- Collada, A.E., and A. Haney. 1998. Vegetation changes associated with oak wilt. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 86:35–46.
- Cole, M.S. 1977. *The ecology of lichens and bryophytes in the Kickapoo River Valley, southwestern Wisconsin*. Ph.D. thesis, University of Wisconsin-Madison, Madison. 288 pp.
- Comer, P.K., D. Albert, H. Wells, B. Hart, J. Raab, D. Price, D. Kashian, R. Corner, and D. Schuen. 1995. *Michigan's native landscape as interpreted from the General Land Office surveys 1816–1856*. Michigan Natural Features Inventory, Report No. 1995-07, Lansing.
- Comer, P.K., K. Goodin, G. Hammerson, S. Menard, M. Pyne, M. Reid, M. Robles, M. Russo, L. Sneddon, K. Snow, L. Tomaino, and M. Tuffly. 2005. *Biodiversity values of geographically isolated wetlands: An analysis of 20 U.S. states*. NatureServe, Arlington, Virginia.
- Costello, D.F. 1936. Tussock meadows in southeastern Wisconsin. *Botanical Gazette* 97:610–648.
- Cottam, G. 1949. The phytosociology of an oak woods in southwestern Wisconsin. *Ecology* 30(3):271–287.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. Office of Biological Services, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C. 103 pp.
- Cowles, H.C. 1899. The ecological relations of the vegetation on the sand dunes of Lake Michigan. *Botanical Gazette* 27(2):95–117.
- Crow, G.E., and C.B. Hellquist. 2000. *Aquatic and wetland plants of northeastern North America*. Volume 1. University of Wisconsin Press, Madison.

- Crow, G.E., and C.B. Hellquist. 2000. *Aquatic and wetland plants of northeastern North America*. Volume 2. University of Wisconsin Press, Madison.
- Crow, T.R., M.E. Baker, and B.V. Barnes. 2000. Diversity in riparian landscapes. Pages 43–66 in E.S. Verry, J.W. Hornbeck, and C.A. Dolloff, editors. *Riparian management in forests of the continental eastern United States*. CRC Press, Boca Raton, Florida.
- Crum, H. 1984. Sphagnopsida, Sphagnaceae. *North American Flora*, Series 2, Part 11:1–180.
- Crum, H. 1988. *A focus on peatlands and peat mosses*. University of Michigan Press, Ann Arbor. 306 pp.
- Crum, H. 2004. *Mosses of the Great Lakes*. Fourth edition. University of Michigan Herbarium, Ann Arbor. 592 pp.
- Curtis, J.T. 1959. *Vegetation of Wisconsin: An ordination of plant communities*. University of Wisconsin Press, Madison. 657 pp.
- Cutko, A., and T.J. Rawinski. 2008. Flora of northeastern vernal pools. Pp 71–90 in A.J.K. Calhoun and P.G. DeMaynadier, editors. *Science and conservation of vernal pools of northeastern North America*. CRC Press, Boca Raton, Florida.
- Dachnowski, A.P. 1925. Profiles of peat lands within the limits of extinct Glacial Lakes Agassiz and Wisconsin. *Botanical Gazette* 80:345–366.
- Daijiang, 'Li, and D.M. Waller. 2015. Drivers of observed biotic homogenization in central Wisconsin pine barrens. *Ecology* 96(4):1031–1041.
- David, P. 2000. An overview of the Great Lakes Indian Fish and Wildlife Commission's wild rice management program. Pages 149–157 in L.S. Williamson, L.A. Dlutkowsky, and A.P. McCammom Soltis, editors. *Proceedings of the Wild Rice Research and Management Conference 7–8 July, 1999, Carlton, Minnesota*. Great Lakes Indian Fish and Wildlife Commission, Odanah, Wisconsin.
- Davis, M.D., S. Sugita, R.R. Calcote, and L.E. Frelich. 1992. Effects of invasion by *Tsuga canadensis* on a North American Forest ecosystem. Pages 33–44 in A. Teller, P. Mathy, and J.N.R. Jeffers, editors. *Response of forested ecosystems to environmental changes*. Elsevier Applied Science, London.
- Davis, M.D., S. Sugita, R.R. Calcote, T.E. Parshall, and J.B. Ferrari. 1995. 3000 years of abundant hemlock in upper Michigan. Pages 19–27 in G. Mroz and J. Martin, eds. *Hemlock ecology and management*. University of Wisconsin-Madison, Department of Forestry, Madison.
- Deil, U. 2005. A review on habitats, plant traits and vegetation of ephemeral wetlands – a global perspective. *Phytocoenologia* 35:533–705.
- DeLong, K.T., and C. Hooper. 1996. A potential understory flora for oak savanna in Iowa. *Journal of the Iowa Academy of Science* 103(1–2):9–28.
- Dey, D.C., A.A. Royo, P.H. Brose, T.F. Hutchinson, M.A. Spetich, and S.H. Stoleson. 2010. An ecologically based approach to oak silviculture: A synthesis of 50 years of oak ecosystem research in North America. *Revista Colombia Forestal* 13(2):201–222.
- DiMauro, J.D., and M.L. Hunter, Jr. 2002. Reproduction of amphibians in natural and anthropogenic pools in managed forests. *Forest Science* 48(2):397–406.
- Dorney, C.H., and J.R. Dorney. 1989. An unusual oak savanna in northeastern Wisconsin: The effect of Indian-caused fire. *American Midland Naturalist* 122:103–113.
- Dott, R.H., and J.W. Attig. 2004. *Roadside geology of Wisconsin*. Mountain Press Publishing Company, Missoula, Montana. 346 pp.
- Drever, J.I. 1982. *The geochemistry of natural waters*. Prentice-Hall, Englewood Cliffs, New Jersey.
- Dunn, C.P., G.R. Guntenspergen, and J.A. Dorney. 1983. Catastrophic wind disturbance in an old-growth hemlock-hardwood forest, Wisconsin. *Canadian Journal of Botany* 61:211–217.
- Eckstein, R.E. 1980. *Eastern hemlock (Tsuga canadensis) in north central Wisconsin*. Wisconsin Department of Natural Resources, Research Report 104, Madison. 20 pp.
- Edinger, G.J., D.J. Evans, S. Gebauer, T.G. Howard, D.M. Hunt and A.M. Olivero, editors. 2014. *Ecological communities of New York State*. Second edition: A revised and expanded edition of Carol Reschke's *Ecological Communities of New York State*. New York Natural Heritage Program, New York State Department of Environmental Conservation, Albany, New York.
- Eggleton, F.E. 1986. Limnology of a meromictic interglacial plunge-basin lake. *Transactions of the American Microscopical Society* 75:334–378.
- Engel, S. 1985. *Aquatic community interactions of submerged macrophytes*. Wisconsin Department of Natural Resources, Technical Bulletin 156, Madison. 79 pp.
- Epstein, E.J., E.J. Judziewicz, and W.A. Smith. 1997. *Wisconsin's Lake Superior coastal wetlands evaluation: Including other selected features of the Lake Superior Basin*. Wisconsin Department of Natural Resources, Bureau of Endangered Resources, Report to the U.S. Environmental Protection Agency, Great Lakes National Program Office, Madison.
- Eswein, R.J. 1995. *Logging dilemma in the big swamp: A late 1800s history of harvesting the last virgin pine forest of west central Wisconsin*. Monroe County Historical Society, Sparta, Wisconsin.
- Faber-Langendoen, D., and J. Tester. 1993. Oak mortality in sand savannas following drought in east-central Minnesota. *Bulletin of the Torrey Botanical Club* 120(3):248–256.
- Faber-langendoen, D., editor. 2001. *Plant communities of the Midwest: Classification in an ecological context*. Association for Biodiversity Information (now "NatureServe"), Arlington, VA. 61 pp. + appendix (705 pp.).
- Fannucchi, G.T., W.M. Fannucchi, and S. Craven. 1986. *Wild-rice in Wisconsin: Its ecology and cultivation*. University of Wisconsin-Extension, Bulletin No. G3372, Madison.
- Fassett, N.C. 1930. The plants of some northeastern Wisconsin lakes. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 25:157–168.
- Fassnacht, K.S., D.R. Bronson, B.J. Palik, A.W. D'Amato, C.G. Lorimer, and K.J. Martin. 2015. *Accelerating the development of old-growth characteristics in second-growth northern hardwoods*. U.S. Forest Service, Northern Research Station, General Technical Report NRS-144, Newtown Square, Pennsylvania. 33 pp.
- Finley, R.W. 1976. *Original vegetation cover of Wisconsin*. Map compiled from U.S. General Land Office notes. University of Wisconsin Extension, Madison. Map at 1:500,000 scale.
- Flannigan, M.D. 1993. Fire regime and the abundance of red pine. *International Journal of Wildland Fire* 3(4):241–247.
- Flinn, K.M., M.J. Lechowicz, and M.J. Waterway. 2008. Plant species diversity and composition of wetlands within an upland forest. *American Journal of Botany* 95:1216–1224.
- Foote, K.G. 1966. The vegetation of lichens and bryophytes on limestone outcrops in the Driftless Area of Wisconsin. *Bryologist* 69:265–292.
- Fralish, J.S. 2004. The keystone role of oak and hickory in the central hardwood forest. Pages 78–87 in M.A. Spetic, editor. *Upland oak ecology symposium: History, current conditions, and sustainability*. U.S. Forest Service, Southern Research Station, General Technical Report SRS-73, Asheville, North Carolina.
- Freeman, R.E., E.H. Stanley, and M.G. Turner. 2003. Analysis and conservation implications of landscape change in the Wisconsin River floodplain, USA. *Ecological Applications* 13:416–431.
- Frelich, L.E. 2002. *Forest dynamics and disturbance regimes: Studies from temperate evergreen-deciduous forests*. Cambridge University Press, Cambridge, U.K. 266 pp.
- Frelich, L.E. R.R. Calcote, M.B. Davis, and J. Pastor. 1993. Patch formation and maintenance in an old growth hemlock-hardwood forest. *Ecology* 74:513–527.
- Frelich, L.E., and C.G. Lorimer. 1985. Current and predicted long-term effects of deer browsing in hemlock forests of Michigan, USA. *Biological Conservation* 34:99–120.

- Frelich, L.E., and C.G. Lorimer. 1991. Natural disturbance regimes in hemlock-hardwood forests of the Upper Great Lakes region. *Ecological Monographs* 61(2):145–164.
- Frelich, L.E., and P.B. Reich. 1991. A simulation of landscape-level stand dynamics in the northern hardwood region. *Journal of Ecology* 79:223–233.
- Frelich, L.E., and P.B. Reich. 1995. Spatial patterns and succession in a Minnesota southern boreal forest. *Ecological Monographs* 65(3):325–346.
- Frelich, L.E., and P.B. Reich. 1996. *Old growth in the Great Lakes region*. Pages 144–159 in M.B. Davis, editor. *Eastern old growth forests*. Island Press, Washington, D.C.
- Frelich, L.E., and P.B. Reich. 2003. Perspectives on development of definitions and values related to old-growth forests. *Environmental Review* 11:S9–S22.
- Frest, T. 1991. *Summary status reports on eight species of candidate land snails from the Driftless Area (Paleozoic Plateau), Upper Midwest*. U.S. Fish and Wildlife Service, Region 3, Contract no. 30181-01366, Final Report. Fort Snelling, Minnesota.
- Frissell, C.A., W.J. Liss, C.E. Warren, and M.D. Hurley. 1986. A hierarchical framework for stream habitat classification: Viewing streams in a watershed context. *Environmental Management* 10(2):199–214.
- Fry, B. 1986. Sources of carbon and sulfur nutrition for consumers in three meromictic lakes of New York State. *Limnology and Oceanography* 31(1):79–88.
- Gergel, S.E., M.D. Dixon, and M.G. Turner. 2002. Consequences of human-altered floods: Levees, floods, and floodplain forests along the Wisconsin River. *Ecological Applications* 12(6):1755–1770.
- Gibbs, J.P. 1998. Importance of small wetlands for the persistence of local populations of wetland associated animals. *Wetlands* 13:25–31.
- Gilbert, M.L., and J.T. Curtis. 1953. Relation of the understory to the upland forest in the prairie-forest border region of Wisconsin. *Transactions of the Wisconsin Academy of Science, Arts and Letters* 47:183–195.
- Glaser, P.H. 1987. *The ecology of patterned boreal peatlands of northern Minnesota: A community profile*. U.S. Fish and Wildlife Service, National Wetlands Research Center, Biological Report 85(7.14), Washington, D.C. 98 pp.
- Glaser, P. 1992. Raised bogs in eastern North America – regional controls for species richness and floristic assemblages. *Journal of Ecology* 80: 535–554.
- Glime, J.M. 1993. *The elfin world of mosses and liverworts of Michigan's Upper Peninsula and Isle Royale*. Isle Royale Natural History Association, Houghton, Michigan.
- Goder, H.A. 1955. *A phytosociological study of Tsuga canadensis near the termination of its range in Wisconsin*. Ph.D. dissertation, University of Wisconsin-Madison, Madison.
- Goodburn, J.M., and C.G. Lorimer. 1998. Cavity trees and coarse woody debris in old-growth and managed northern hardwood forests in Wisconsin and Michigan. *Canadian Journal of Forest Research* 28:427–438.
- Grady, W. 2007. *The Great Lakes: The natural history of a changing region*. Greystone Books, Vancouver, British Columbia, Canada.
- Green, J.G. 1995. *Birds and forests: A management and conservation guide*. Minnesota Department of Natural Resources, St. Paul, Minnesota. 182 pp.
- Gregg, L., and N.D. Niemuth. 2000. The history, status, and future of sharp-tailed grouse in Wisconsin. *Passenger Pigeon* 62:158–174.
- Gregory, S.V., F.J. Swanson, W.A. McKee, and K.W. Cummins. 1991. An ecosystem perspective of riparian zones. *BioScience* 41:540–551.
- Grimm, E.C. 1984. Fire and other factors controlling the Big Woods vegetation of Minnesota in the mid-nineteenth century. *Ecological Monographs* 54:291–311.
- Grossman, E.B., and D.J. Mladenoff. 2007. Open woodland and savanna decline in a mixed-disturbance landscape (1938 to 1998) in the northwest Wisconsin sand plain. *Landscape Ecology* 22:43–55.
- Habeck, J. 1959. A phytosociological study of the upland forest communities in the central Wisconsin sand plain area. *Transactions of the Wisconsin Academy of Science, Arts and Letters* 48:31–48.
- Hale, B.W., E.M. Alsum, and M.S. Adams. 2008. Changes in the floodplain forest vegetation of the Lower Wisconsin River over the last fifty years. *The American Midland Naturalist* 2:454–476.
- Hale, C.M., L.E. Frelich, and P.B. Reich. 2006. Changes in cold-temperate hardwood forest understory plant communities in response to invasion by European earthworms. *Ecology* (87):1637–1649.
- Hale, C.M., L.E. Frelich, P.B. Reich, and J. Pastor. 2008. Exotic earthworm effects on hardwood forest floor, nutrient availability, and native plants: A mesocosm study. *Oecologia* 155(3):509–518.
- Haney, A., and S.I. Apfelbaum. 1990. Structure and dynamics of Midwest oak savannas. Pages 19–30 in J.M. Sweeney, editor. *Management of dynamic ecosystems*. North Central Section, The Wildlife Society, West Lafayette, Indiana.
- Haney, A., and S.I. Apfelbaum. 1994. Measuring changes in oak savannas: A review and recommendations for a monitoring protocol. Pages 253–257 in J. Fralish, R.C. Anderson, J.E. Ebinger, and R. Szafoni, editors. *Proceedings of the North American Conference on savannas and barrens*. Illinois University, Normal, Illinois.
- Hanowski, J., N. Danz, J. Lind., and G. Niemi. 2003. Breeding bird response to riparian forest harvest and harvest equipment. *Forest Ecology and Management* 174:315–328.
- Hansen, H.P. 1933. Tamarack bogs of the driftless area of Wisconsin. *Bulletin of the Milwaukee Public Museum* 7:231–394.
- Hansson, L. 1992. Landscape ecology of boreal forests. *Trends in Ecology and Evolution* 7:299–302.
- Harris, A.G., S.C. McMurray, P.W.C. Uhlig, J.K. Jeglum, R.F. Foster, and G.D. Racey. 1996. *Field guide to the wetland ecosystem classification for northwestern Ontario*. Ontario Ministry of Natural Resources, Northwest Science and Technology, Field Guide FG-01, Thunder Bay, Ontario. 74 pp.
- Harris, L.D. 1984. *The fragmented forest: Island biogeographic theory and preservation of biodiversity*. University of Chicago Press, Chicago.
- Harris, R.J., and J.M. Reed. 2001. Territorial movement of black-throated blue warblers in a landscape fragmented by forestry. *The Auk* 118(2):544–549.
- Heikens, A.L., and P.A. Robertson. 1994. Barrens of the Midwest: A review of the literature. *Castanea* 59:184–194.
- Heinselman, M.L. 1963. Forest sites, bog processes, and peatland types in the Glacial Lake Region, Minnesota. *Ecological Monographs* 33(4):327–374.
- Heinselman, M.L. 1970. Landscape evolution, peatland types, and the environment in the Glacial Lake Agassiz Peatland Natural Area, Minnesota. *Minnesota Ecological Monographs* 40:235–261.
- Heinselman, M.L. 1981. Fire and succession in the conifer forests of northern North America. Pages 374–405 in D.C. West, H.H. Shugart, and D.B. Botkin, editors. *Forest succession: Concepts and application*. Springer-Verlag, Washington, D.C.
- Henderson, R.A. 1995. *Plant species-composition of Wisconsin prairies: An aid to selecting species for plantings and restorations based upon University of Wisconsin-Madison Plant Ecology Laboratory data*. Wisconsin Department of Natural Resources, Technical Bulletin 188, Madison.
- Henderson, R., and E. Epstein. 1995. Oak savannas in Wisconsin. Pages 230–232 in E.T. LaRoe, G.S. Farris, C.E. Puckett, P.D. Doran, and M.J. Mac, editors. *Our living resources: a report to the nation on the distribution, abundance, and health of U.S. plants, animals, and ecosystems*. U.S. Department of Interior, National Biological Service, Washington, D.C. Available online at <https://archive.org/stream/ourlivingresourc00unit#page/230/mode/2up>.
- Henderson, R. 1995. Oak savanna communities. Pages 88–96 in *Wisconsin's biodiversity as a management issue: a report to Department of Natural Resource managers*. Wisconsin Department of Natural

- Resources, PUB RS 915 95, Madison.
- Herdendorf, C.E. 1990. Great Lakes estuaries. *Coastal and Estuarine Research Federation* 13(4):493–503. Available online at <http://www.jstor.org/stable/1351795>.
- Higgins, J., M. Lammert, M. Bayes, M. DePhilip, and D. Grossman. 1998. *Freshwater conservation in the Great Lakes basin: Development and application of an aquatic community classification*. Great Lakes Office of The Nature Conservancy, Chicago.
- Hipp, A. 2008. *Field guide to Wisconsin sedges: An introduction to the genus Carex (Cyperaceae)*. University of Wisconsin Press, Madison. 265 pp. (This important and diverse but difficult group has often been ignored or lumped in descriptive ecological studies; therefore we have included this excellent work here.)
- Houseman, G.R., and R.C. Anderson. 2002. Effects of jack pine plantation management on barrens flora and potential Kirtland's Warbler nest habitat. *Restoration Ecology* 10(1):27–36.
- Hujik, P.M. 1995. *Lowland savannas: Groundlayer composition and distribution in relation to elevation and light*. M.S. Thesis. University of Wisconsin-Madison, Madison.
- Hunter, M.L., Jr. 1993. Natural fire regimes as spatial models for managing boreal forests. *Biological Conservation* 65(2):115–120.
- Imlay, M.J. 1973. A case for protecting the Driftless Area of the Upper Midwest. *Malacological Review* 6(1):64–65.
- Jass, J., and B. Klausmeier. 2006. *Determining the presence of fairy shrimps (Crustacea: Anostraca) at ephemeral pond sites in Wisconsin*. Wisconsin Department of Natural Resources, Research Report 188, Madison.
- Jennings, M.A., M.A. Bozek, G.R. Hatzenbeler, E. Emmons, and M. Staggs. 1999. Cumulative effects of incremental shoreline habitat modification on fish assemblages in north temperate lakes. *North American Journal of Fisheries Management* 19:18–27.
- Jennings, M.J., D. Faber-Langendoen, O.L. Loucks, and R.K. Peet. 2009. Standards for associations and alliances of the U.S. National Vegetation Classification. *Ecological Monographs* 79(2):173–199.
- Jennings, M.J., G.R. Hatzenbeler, M.A., Bozek, and C.E. Edwards. 2009. Natural and human influences on fish species richness in small north temperate lakes: Implications for bioassessment. *Journal of Freshwater Ecology* 24:7–18.
- Jennings, M.J., J. Lyons, E. Emmons, G.R. Hatzenbeler, M.A. Bozek, T.D. Simonson, T.D. Beard, Jr., and D. Fago. 1999. Toward the development of an index of biotic integrity for inland lakes in Wisconsin. Pages 541–562 in T.P. Simon, editor. *Assessing the Sustainability and Biological Integrity of Water Resources Using Fish Communities*. CRC Press, Boca Raton, Florida.
- Johnson, P.S., S.R. Shifley, and R. Rogers. 2009. *The ecology and silviculture of oaks*. Second edition. CAB International, Cambridge, Massachusetts.
- Johnson, S.E., and D.M. Waller. 2015. Patterns and drivers of riparian forest vegetation changes over the last half century in southern Wisconsin. Conference paper, available online at https://www.researchgate.net/publication/283331754_PATTERNS_AND_DRIVERS_OF_RIPARIAN_FOREST_VEGETATION_CHANGES_OVER_LAST_HALF_CENTURY_IN_SOUTHERN_WISCONSIN?enrichId=rgreq-bbe596f2f346238ca-5d134a087e52b98-XXX&enrichSource=Y292ZXJQY-WdIOzI4MzMzMtC1NDtBUzozNTIyMTkzODkwMjlyM-DIAMTQ2MDk4NzA1NDc2OQ%3D%3D&el=1_x_2&esc=publicationCoverPdf.
- Jones, M., and M. Bowles. 2013. *Tree ring analysis of eastern red cedar reveals fire history of Fults Hill Prairie Nature Reserve, and its relationship to climate and loss of prairie vegetation*. The Morton Arboretum, Lisle, Illinois.
- Judziwicz, E. 2001. Flora and vegetation of the Grand Traverse Islands (Lake Michigan), Wisconsin and Michigan. *The Michigan Botanist* 40(4):81–208.
- Judziwicz, E.J., R.W. Freckmann, L.G. Clark, and M.R. Black. 2014. *Field guide to Wisconsin grasses*. University of Wisconsin Press, Madison. 346 pp.
- Judziwicz, E., and R. Koch. 1993. Flora and vegetation of the Apostle Islands National Lakeshore and Madeline Island, Ashland and Bayfield counties, Wisconsin. *The Michigan Botanist* 32(2):43–189.
- Kahl, R. 1993. Aquatic macrophyte ecology of the Upper Winnebago Pool Lakes, Wisconsin. Wisconsin Department of Natural Resources Technical Bulletin 182, Madison. 60 pp.
- Keddy, P.A., and A.A. Reznicek. 1986. Great Lakes vegetation dynamics: The role of fluctuating water levels and buried seeds. *Journal of Great Lakes Research* 12:25–36.
- Keough, J.A. 1986. The Mink River – A fresh water estuary. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 74:1–11.
- Keough, J.R., T.A. Thompson, G.R. Guntenpergen, and D.A. Wilcox. 1999. Hydrogeomorphic factors and ecosystem responses in coastal wetlands of the Great Lakes. *Wetlands* 19:821–834.
- Kershner, J.L. 1997. Setting riparian/aquatic restoration objectives within a watershed context. *Restoration Ecology* 5:15–24.
- King, R. 2000. Effects of single burn events on degraded oak savanna. *Ecological Restoration* 18:228–233.
- Kingsbury, B.A., and J. Gibson, editors. 2012. *Habitat management guidelines for amphibians and reptiles of the Midwestern United States*. Second edition. Partners in Amphibian and Reptile Conservation (PARC) technical publication HMG-1. 155 pp.
- Kirk, K. 1996. *The Karner blue community: Understanding and protecting rare species of the barrens*. Wisconsin Department of Natural Resources, Bureau of Endangered Resources, Final report to the U.S. Fish & Wildlife Service. Madison, Wisconsin. 96 pp.
- Kirk, K., and C.R. Bomar. 2005. *Guide to the grasshoppers of Wisconsin*. Wisconsin Department of Natural Resources, Bureau of Integrated Science Services, Madison. 154 pp.
- Kline, V.M. 1997. Orchards of oak and a sea of grass. Pages 3–21 in S. Packard and C.F. Mutel, editors. *The Tallgrass Prairie Restoration Handbook*. Island Press, Washington, D.C.
- Kline, V.M., and T.M. McClintock. 1991. Effect of burning a dry oak forest infested with woody exotics. Pages 207–214 in G.V. Burger, J.E. Ebinger, and G.S. Wilhelm. *Proceedings of the oak woods management workshop 2008*. Eastern Illinois University, Charleston, Illinois.
- Klinger, L.F. 1996. The myth of the classic hydrosere model of bog succession. *Arctic and Alpine Research* 28:1–9.
- Kneeshaw, D., and S. Gauthier. 2003. Old growth in the boreal forest: A dynamic perspective at the stand and landscape level. *Environmental Review* 11(S1):S99–S114.
- Knoet, T.G., L.A. Schulte, J.C. Tyndall, and B.J. Palik. 2010. The state of the system and steps toward resilience of disturbance-dependent oak forests. *Ecology and Society* 15(4):5. Available online at <http://www.ecologyandsociety.org/vol15/iss4/art5/>.
- Knutson, M.G., J.P. Hoover, and E.E. Klaas. 1996. The importance of floodplain forests in the conservation and management of Neotropical migratory birds in the Midwest. Pages 168–188 in F.R. Thompson III, ed. *Management of Midwestern Landscapes for the conservation of Neotropical migratory birds*. U.S. Forest Service, North Central Forest Experiment Station. General Technical Report NC-1817, St. Paul.
- Knutson, M.G., L.E. McColl, and S.A. Suarez. 2005. Breeding bird assemblages associated with stages of forest succession in large river floodplains. *Natural Areas Journal* 25:55–70.
- Kohm, K.A., and J.F. Franklin. 1997. *Creating a forestry for the 21st century: The science of ecosystem management*. Island Press, Washington, D.C. 475 pp.
- Kost, M.A., D.A. Albert, J.G. Cohen, R.K. Schillo, C.R. Weber, and K.A. Chapman. 2007. *Natural communities of Michigan: Classification and description*. Michigan Natural Features Inventory, Report Number 2007-21, Lansing. 314 pp.
- Kost, M.A., and D. De Steven. 2000. Plant community responses to prescribed burning in Wisconsin sedge meadows. *Natural Areas*

- Kotar, J., J.A. Kovach, and T.L. Burger. 2002. *A guide to forest habitat types of northern Wisconsin*. Second edition. University of Wisconsin-Madison, Department of Forest Ecology and Management, Madison.
- Kraszewski, S.E., and D.M. Waller. 2008. Fifty-five year changes in species composition on dry prairie remnants in south-central Wisconsin. *Torrey Botanical Society* 135(2):236–244.
- Kreitinger, K. 2013. Wild rice: habitat description. In K. Kreitinger, Y. Steele, and A. Paulios. The Wisconsin All-bird Conservation Plan, version 2.0. Wisconsin Bird Conservation Initiative, Wisconsin Department of Natural Resources, Madison, Wisconsin.
- Lammert, M., J. Higgins, D. Grossman, and M. Bryer. 1997. *A classification framework for freshwater communities*. The Nature Conservancy, Great Lakes Program Office, Chicago (Lammert and Higgins) and The Nature Conservancy, Ecology Department, Conservation Science Division, International Headquarters (Grossman and Bryer), Arlington, Virginia.
- Lange, K.I. 2014. *Song of place: A natural history of the Baraboo Hills*. Ballindalloch Press, Baraboo, Wisconsin. 663 pp.
- Leach, M.K., and T.J. Givnish. 1998. Identifying highly restorable savanna remnants. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 86:119–127.
- Leach, M.K., and T.J. Givnish. 1999. Gradients in the composition, structure, and diversity of remnant oak savannas in southern Wisconsin. *Ecological Monographs* 69(3):353–374.
- Leach, M.K., and L. Ross, editors. 1995. *Midwest oak ecosystem recovery plan*. Midwest Oak Savanna and Woodland conference, Springfield, Missouri.
- Leahy, M.J., and K.S. Pregitzer. 2003. A comparison of presettlement and present-day forests in northeastern lower Michigan. *American Midland Naturalist* 149(1):71–89.
- Leibowitz, S.G., and R.T. Brooks. 2008. Hydrology and landscape connectivity of vernal pools. Pages 31–53 in A.J.K. Calhoun, P.G. DeMaynadier. *Science and conservation of vernal pools of north-eastern North America*. CRC Press, Boca Raton, Florida.
- Lewis, H.T., and T.A. Ferguson. 1988. Yards, corridors, and mosaics: How to burn a boreal forest. *Human Ecology* 16(1):57–77.
- Liang, D., and D.M. Waller. 2015. Drivers of observed biotic homogenization in central Wisconsin. *Ecology* 96(4):1030–1041.
- Lichter, J. 1998. Primary succession and forest development on coastal Lake Michigan sand dunes. *Ecological Monographs* 68:487–510.
- Lillie, R.A. 2003. Macroinvertebrate community structure as a predictor of water duration in Wisconsin wetlands. *Journal of the American Water Resources Association* 39:398–400. doi:10.1111/j.1752-1688.2003.tb04393.x
- Little, A.M. 2017. *Ephemeral pond vegetation of the glaciated Upper Midwest: A comparison with permanent wetlands*. Technical Report, University of Wisconsin-Stout, Menomonie, Wisconsin. 17 pp.
- Loope, W.L. 1998. Human vs. lightning ignition of presettlement surface fires in coastal pine forests of the Upper Great Lakes. *American Midland Naturalist* 140:206–218.
- Lorimer, C.G. 1984. Development of the red maple understory in northeastern oak forests. *Forest Science* 30:3–22.
- Lorimer, C.G., and L.E. Frelich. 1994. Natural disturbance regimes in old growth northern hardwoods. *Journal of Forestry* 92:33–38.
- Loss, S.R., R.M. Hueffmeier, C.M. Hale, G.E. Host, G. Sjerven, and L.E. Frelich. 2013. Earthworm invasions in northern hardwood forest: A rapid assessment method. *Natural Areas Journal* 33(1):21–30.
- Lyons, J. 1992. *Using the Index of Biotic Integrity (IBI) to measure environmental quality in warmwater streams in Wisconsin*. U.S. Forest Service, North Central Experiment Station, General Technical Report NC-149, St. Paul.
- Lyons, J. 1996. Patterns in the composition of fish assemblages in streams. *Environmental Biology of Fishes* 45:329–341.
- Lyons, J. 2005. *Aquatic communities: Description, threats, and conservation recommendations*. Wisconsin Department of Natural Resources, Bureau of Integrated Science Services, Madison.
- Lyons, J. 2006. A fish-based index of biotic integrity to assess intermittent headwater streams in Wisconsin, USA. *Environmental Monitoring and Assessment* 122:239–258.
- Lyons, J., L. Wang, and T. Simonson. 1996. Development and validation of an Index of Biotic Integrity for coldwater streams in Wisconsin. *North American Journal of Fisheries Management* 16(2).
- Lyons, J., T. Zorn, J. Stewart, P. Seelbach, K. Wehrly, and Lizhu Wang. 2009. Defining and characterizing coolwater streams and their fish assemblages in Michigan and Wisconsin, USA. *North American Journal of Fisheries Management* 29:1130–1151.
- Mack-Olson, D. 1998. *Felsenmeers: The species and ecology of the glacial relicts of Rusk and Barron counties*. Unpublished report to University of Wisconsin Department of Botany.
- Matteson, S. 1996. Birds of Wisconsin's lake beaches and dunes. *Pas-senger Pigeon* 58(4):335–413.
- Matula, C. 2009. *Deer browse, Pennsylvania sedge, and silviculture strategies to enhance tree regeneration in northern hardwood forests in Wisconsin*. Draft report, Division of Forestry, Northern Region, Wisconsin Department of Natural Resources, Woodruff, Wisconsin.
- Maxwell, J.R., C.J. Edwards, M.E. Jensen, S.J. Paustian, H. Parrott, and D.M. Hill. 1995. *A hierarchical framework of aquatic ecological units in North America (Nearctic Zone)*. U.S. Forest Service, North Central Forest Experiment Station, General Technical Report NC-176, St. Paul.
- Maycock, P.F. 1957. *The phytosociology of boreal conifer-hardwood forests of the Great Lakes Region*. Ph.D. thesis, University of Wisconsin-Madison, Madison, Wisconsin.
- Maycock, P.F. 1961. The spruce-fir forest of the Keweenaw Peninsula, northern Michigan. *Ecology* 42:357–365.
- McIntosh, R.P. 1950. Pine stands in southwestern Wisconsin. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 40:243–257.
- McRae, D.J., T.J. Lynham, and R.J. Frech. 1994. Understory prescribed burning in red pine and white pine. *Forestry Chronicle* 70(4):395–401.
- Meadows, J.S., and G.J. Nowacki. 1996. *An old-growth definition for eastern riverfront forests*. U.S. Forest Service, Southern Forest Research Station, General Technical Report, SRS-4, Asheville, North Carolina. 7 pp.
- Meeker, J.E. 1999. The ecology of “wild” wild rice (*Zizania palustris* var. *palustris*) in the Kakagon Sloughs, a riverine wetland on Lake Superior. Pages 68–83 in L.S. Williamson, L.A. Dlutkowski, and A.P. McCammon-Soltis, editors. *Proceedings of the Wild Rice Research and Management Conference 7–8 July, 1999, Carlton, Minnesota*. Great Lakes Indian Fish and Wildlife Commission, Odanah, Wisconsin.
- Middleton, B. 2002. Nonequilibrium dynamics of sedge meadows grazed by cattle in southern Wisconsin. *Plant Ecology* 161(1):89–110.
- Middleton, B. 2002. Winter burning and reduction of *Cornus sericea* in sedge meadows of southern Wisconsin. *Restoration Ecology* 10(4):1–8.
- Middleton, B. 2004. *Cattle grazing and its long-term effects on sedge meadows*. U.S. Geological Survey Fact Sheet 2004-3027. United State Geological Survey, National Wetlands Research Center, Lafayette, Louisiana. 4 pp.
- Miller, J.R., M.D. Dixon, and M.G. Turner. 2005. Response of avian communities in large-river floodplain to environmental variation at multiple scales. *Ecological Applications* 14(5):1394–1410.
- Miller, M.M., K. Songer, and R. Dolen. 2014. *Field guide to Wisconsin streams: Plants, fishes, amphibians, and reptiles*. University of Wisconsin Press, Madison. 312 pp.
- Mills, J.E. 2008. Fifty years of change in Wisconsin cedar glades. *American Midland Naturalist* 159:214–224.
- Minnesota Department of Natural Resources. 2003. *Field guide to the native plant communities of Minnesota: The Laurentian Mixed*

- Forest Province. Minnesota Department of Natural Resources, Ecological Land Classification Program, Minnesota County Biological Survey, and Natural Heritage and Nongame Research Program, St. Paul. 352 pp.
- Minnesota Department of Natural Resources. 2005. *Field guide to the native plant communities of Minnesota: The Eastern Broadleaf Forest Province*. Minnesota Department of Natural Resources, Ecological Land Classification Program, Minnesota County Biological Survey, and Natural Heritage and Nongame Research Program, St. Paul. 394 pp.
- Minnesota Department of Natural Resources. 2005. *Field guide to the native plant communities of Minnesota: The Prairie Parkland and Tallgrass Aspen Parklands Provinces*. Minnesota Department of Natural Resources, Ecological Land Classification Program, Minnesota County Biological Survey, and Natural Heritage and Nongame Research Program. St. Paul. 362 pp.
- Mladenoff, D.J., and J. Pastor. 1993. Sustainable forest ecosystems in the northern hardwood and conifer region: Concepts and management. Pages 145–180 in G.H. Aplet, J.T. Olson, N. Johnson, and V.A. Sample, editors. *Defining sustainable forestry*. The Wilderness Society, Island Press, Washington, D.C.
- Mladenoff, D.L., T. Sickley, L. Schulte, J. Rhemtulla, and J. Bollinger. 2009. *Wisconsin's land cover in the 1800s*. Wisconsin Department of Natural Resources, PUB-CE-4017 2009, Madison. Available online at <http://dnr.wi.gov>, keywords "Wisconsin's land cover in the 1800s."
- Mladenoff, D.J., and F. Stearns. 1993. Eastern hemlock regeneration and deer browsing in the northern Great Lakes region: A re-examination and model simulation. *Conservation Biology* 7(4):88–90.
- Mladenoff, D.J., M.A. White, J. Pastor, and T.R. Crow. 1993. Comparing spatial pattern in unaltered old-growth and disturbed forest landscapes. *Ecological Applications* 3:294–306.
- Mossman, M.J. 1988. Birds of southern Wisconsin floodplain forests. *The Passenger Pigeon* 50(4):321–337.
- Mossman, M.J., E.J. Epstein, and R.M. Hoffman. 1991. Birds of Wisconsin's pine and oak barrens. *The Passenger Pigeon* 53:137–163.
- Munger, M.G. 2008. *Cladonia* spp. In Fire Effects Information System. U.S. Forest Service web page. Available online at <https://www.feis-crs.org/feis/>.
- Murphy, P.A., and G.J. Nowacki. 1997. *An old-growth definition for xeric pine and pine-oak woodlands*. U.S. Forest Service, Southern Research Station, General Technical Report SRS-7, Asheville, North Carolina.
- National Council on Science for Sustainable Forestry. 2006. *Old-growth & extended rotation forests: Options for the future in the Lakes States*. National Council on Science and the Environment, Background readings from the National Council on Science for Sustainable Forestry Workshop, May 21–24, 2006, Boulder Junction, Wisconsin.
- National Council for Air and Stream Improvement, Inc. 2005. *Defining old-growth in Canada and identifying wildlife habitat in old-growth boreal forest stands*. National Council for Air and Stream Improvement, Inc., Technical Bulletin No. 909. Research Triangle Park, North Carolina.
- Nekola, J.C. 1994. The environment and vascular flora of northeastern Iowa fen communities. *Rhodora* 96:121–169.
- Nekola, J.C. 2004. Vascular plant compositional gradients within and between Iowa fens. *Journal of Vegetation Science* 15(6):771–780.
- Nelson, P.W. 2005. *The Terrestrial Natural Communities of Missouri*. Revised Edition. The Missouri Natural Areas Committee, Jefferson City, Missouri.
- Nichols, S.A. 1999. *Distribution and habitat descriptions of Wisconsin lake plants*. Wisconsin Geological and Natural History Survey, Madison.
- Nichols, S.A., and J.G. Vennie. 1991. *Attributes of Wisconsin lake plants*. Wisconsin Geological and Natural History Survey, Information Circular 73. Madison. 19 pp.
- Nielsen, S.E., and A. Haney. 1998. Gradient responses for understory species in a bracken-grassland and northern-dry forest ecosystem of northeast Wisconsin. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 86:149–166.
- Nielsen, S.E., and A. Haney. 2003. Vegetation composition, dynamics, and management of a bracken-grassland and northern dry forest ecosystem. *Environmental Management* 31:810–821.
- Nielsen, S.E., C. Kirschbaum, and A. Haney. 2003. Restoration of midwest oak barrens: Structural manipulation or process only? *Conservation Ecology* 7(2):10.
- Niemuth, N.D., and M.S. Boyce. 1998. Disturbance in Wisconsin pine barrens: Implications for management. *Transactions of the Wisconsin Academy of Sciences, Arts, and Letters* 86:167–176.
- Niemuth, N.D., and M.S. Boyce. 2004. Influence of landscape composition on sharp-tailed grouse lek location and attendance in Wisconsin. *Ecoscience* 11:209–217.
- Nilsson, C., and K. Berggren. 2000. Alteration of riparian ecosystems caused by river regulation. *Bioscience* 50:783–792.
- Noble, M.G. 1979. The origin of *Populus deltoides* and *Salix interior* zones on point bars along the Minnesota River. *American Midland Naturalist* 102:58–67.
- Novitzki, R.P. 1979. Hydrologic characteristics of Wisconsin's wetlands and their influence on floods, stream flow, and sediment. Pages 377–388 in P.E. Greeson, J.R. Clark, and J.E. Clark, editors. *Wetland functions and values: The state of our understanding*. American Water Resources Association, Minneapolis.
- Nowacki, G.J., and M.D. Abrams. 2008. The demise of fire and the "mesophication" of forests in the eastern United States. *BioScience* 58(2):123–138.
- Nuzzo, V.A. 1986. Extent and status of Midwest oak savanna: Pre-settlement and 1985. *Natural Areas Journal* 6:6–36.
- Nuzzo, V. 1996. Structure of cliff vegetation on exposed cliffs and the effect of rock climbing. *Canadian Journal of Botany* 74:607–617.
- O'Connor, R.P., M. Kost, and J. Cohen. 2009. *Prairies and savannas in Michigan: Rediscovering our natural heritage*. Michigan State Press, East Lansing. 139 pp.
- Packard, S. 1988. Just a few oddball species: Restoration and the rediscovery of the tallgrass savanna. *Restoration and Management Notes* 6(1):13–22.
- Packard, S. 1993. Restoring oak ecosystems. *Restoration and Management Notes* 11:5–16.
- Packard, S., and C.F. Mutel, editors. 1997. *The tallgrass prairie restoration handbook: For prairies, savannas, and woodlands*. Island Press, Washington, D.C. 464 pp.
- Palik, B., D. Streblov, L. Egeland, and R. Buech. 2007. Landscape variation of seasonal pool plant communities in forests of northern Minnesota, USA. *Wetlands* 27:12–23.
- Paull, R.A., and R.K. Paull. 1977. *Geology of Wisconsin and Upper Michigan: Including parts of adjacent states*. Kendall/Hunt Publishing Company, Dubuque, Iowa. 232 pp.
- Peach, M., and J. Zedler. 2006. How tussocks structure sedge meadow vegetation. *Wetlands* 26(2):322–335.
- Post, D.J. 1994. The plant communities of Nine-Mile Island – past and present. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 82:89–108.
- Powers, M. 2005. *Causal mechanisms and impacts of Pennsylvania sedge dominance in Wisconsin's northern hardwood forests*. M.S. Thesis, Michigan Technological University, Houghton, Michigan.
- Powers, M.D., and L.M. Nagel. 2008. Disturbance dynamics influence *Carex pensylvanica* abundance in a northern hardwood forest. *The Journal of the Torrey Botanical Society* 135:317–327.
- Pregitzer, K.S. 1990. The ecology of northern white-cedar. Pages 8–14 in D.O. Lantagne, editor. *Workshop proceedings for northern white-cedar in Michigan*. Michigan State University, East Lansing and Sault Ste. Marie, Michigan.
- Pregitzer, K.S., and S.C. Saunders. 1999. Jack pine barrens of the northern Great Lakes region. Pages 343–361 in R.C. Anderson,

- J.S. Fralish, and I.S. Baskin, editors. *Savannas, barrens, and rock outcrop plant communities of North America*. Cambridge University Press, Cambridge, U.K.
- Quinby, P.A. 1991. Self-replacement in old-growth white pine forests of Temagami, Ontario. *Forest Ecology and Management* 41:95–109.
- Radeloff, V.C., D.J. Mladenoff, and M.S. Boyce. 1999. Forest landscape change in northwest Wisconsin pine barrens from pre-European settlement to the present. *Canadian Journal of Forest Research* 29:1649–1659.
- Radeloff, V.C., D.J. Mladenoff, and M.S. Boyce. 2000. A historical perspective and future outlook on landscape scale restoration in the northwest Wisconsin pine barrens. *Restoration Ecology* 8:119–126.
- Radeloff, V.C., D.J. Mladenoff, K.L. Manies, and M.S. Boyce. 1998. Analyzing forest landscape restoration potential: Pre-settlement and current distribution of oak in the Northwest Wisconsin pine barrens. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 86:189–205.
- Ralston, J.L., and J. Cook. 2013. Impact of prescribed fire, timber removal, and the seed bank on understory plant diversity and canopy cover in an oak-pine barrens, central Wisconsin, USA. *Ecological Restoration* 31(4):395–411.
- Randle, J. 2006. Deer and sedge: Bottlenecks to seedling regeneration in northern hardwood forests. Potential restoration techniques aimed at reversing the effects. Presentation at Society of American Foresters Conference, Forests and Whitetails—striving for balance, June 9–10, 2005. Michigan Society of American Foresters, St. Ignace, Michigan.
- Reed, D.M., 1985. *Composition and distribution of calcareous fens in relation to environmental conditions in southeastern Wisconsin*. M.S. Thesis, University of Wisconsin–Milwaukee, Milwaukee.
- Reed, D.M. 2002. *Environmental correlates of vegetation types in southeastern Wisconsin fens*. Ph.D. Dissertation, University of Wisconsin–Milwaukee, Milwaukee.
- Reetz, M., S. Hull, S. Fandel, and S. Lutz. 2013. *Northwest Sands habitat corridor plan*. University of Wisconsin–Madison, Department of Forest and Wildlife Ecology, Madison. Available online at <http://dnr.wi.gov>, keywords “northwest sands habitat corridor.”
- Reinartz, J.A. 2003. *Vegetation of spring ephemeral ponds in the mesic forests of southeastern Wisconsin*. University of Wisconsin–Milwaukee Field Station Annual Report 2003:20.
- Rheinhardt, R., G. Hollands, A. Calhoun, and P. deMaynadier. 2007. Classification of vernal pools: geomorphic setting and distribution. Pages 11–29 in A.J.K. Calhoun and P.G. deMaynadier, editors. *Science and conservation of vernal pools in northeastern North America*. CRC Press, New York. 392 pp.
- Reschke, C., R. Reid, J. Jones, T. Feeney, and H. Potter. 1999. *Conserving Great Lakes alvars*. The Nature Conservancy, Great Lakes Program, Final Technical Report International Alvar Conservation Commission, Chicago. 230 pp.
- Reuter, D. 1986. Sedge meadows of the Upper Midwest: A stewardship abstract. *Natural Areas Journal* 6:27–34.
- Reznicek, A.A. 1994. The disjunct coastal plain flora in the Great Lakes region. *Biological Conservation* 68:203–215.
- Rheinhardt, R.D., and G.C. Hollands. 2007. Classification of vernal pools: Geomorphic setting and distribution. Pages 11–29 in A.J.K. Calhoun and P.G. deMaynadier. *Science and conservation of vernal pools in northeastern North America*. CRC Press, Boca Raton, Florida.
- Rich, P.L., L.E. Frelich, and P.B. Reich. 2007. Wind-throw mortality in the southern boreal forest: Effects of species, diameter, and stand age. *Journal of Ecology* 95:1261–1273.
- Richter, B.D., R. Mathews, D.L. Harrison, and R. Wigington. 2003. Ecologically sustainable water management: Managing river flows for ecological integrity. *Ecological Applications* 13:206–224.
- Robinson, W.A. 1980. *Fool hen: The spruce grouse on the Yellow Dog Plains*. University of Wisconsin Press, Madison, Wisconsin.
- Rodewald, A.D. 2003. Decline of oak forests and implications for forest wildlife conservation. *Natural Areas Journal* 23(4):368–371.
- Rogers, D.A., T.P. Rooney, and R.H. Henderson. 2008. From the prairie-forest mosaic to the forest: Dynamics of southern Wisconsin woodlands. Pages 91–101 in D.M. Waller and T.P. Rooney, editors. *The vanishing present: Wisconsin's changing lands, waters, and wild-life*. University of Chicago Press, Chicago.
- Rogers, R.S. 1981. Early spring herb communities in mesophytic forests of the Great Lakes region. *Ecology* 63(4):1050–1063.
- Rooney, T.P. 2001. Deer impacts on forest ecosystems: A North American perspective. *Forestry* 74:201–208.
- Rooney, T.P. 2009. High white-tailed deer densities benefit graminoids and contribute to biotic homogenization of forest ground-layer vegetation. *Plant Ecology* 202:103–111.
- Rooney, T.P., S.L. Solheim, and D.M. Waller. 2002. Factors influencing the regeneration of northern white cedar in lowland forests of the Upper Great Lakes region, U.S.A. *Forest Ecology and Management* 163:119–130.
- Rooney, T.P., and D.M. Waller. 2003. Direct and indirect effects of white-tailed deer on forest ecosystems. *Forest Ecology and Management* 181:165–176.
- Rosgen, D.L. 1994. A classification of natural rivers. *Catena* 22:169–199.
- Rowe, J.S. 1972. *Forest regions of Canada*. Canadian Forestry Service, Department of the Environment, Publication No. 1300, Ottawa, Ontario. 172 pp.
- Rudis, V. 1995. Regional forest fragmentation effects on bottomland hardwood community types and resource values. *Landscape Ecology* 10(5):291–307.
- Runkle, J.R. 1982. Patterns of disturbance in some old-growth mesic forests of eastern North America. *Ecology* 63:1533–1546.
- Salk, T.E., L.E. Frelich, S. Sugita, R. Calcote, J. Ferrari, and R.A. Montgomery. 2011. Poor recruitment is changing the structure and species composition of an old-growth hemlock-hardwood forest. *Forest Ecology and Management* 261:1998–2006.
- Sample, D.W., and M.J. Mossman. 1997. *Managing habitat for grassland birds: a guide for Wisconsin*. Wisconsin Department of Natural Resources, Bureau of Integrated Science Services, Madison.
- Sapper, B. 2008. St. Louis River freshwater estuary. *Wisconsin Great Lakes Chronicle*, pp. 2–3.
- Schaefer, C.A., and D.W. Larson. 1997. Vegetation, environmental characteristics, and ideas on the maintenance of alvars on the Bruce Peninsula, Canada. *Journal of Vegetation Science* 8:797–810.
- Scheffer, M. 2001. *Ecology of shallow lakes*. Kluwer Academic Publishers, Boston. 367 pp.
- Schmude, K.L. 2012. *Aquatic macroinvertebrate biotic field surveys and taxonomy: Ephemeral ponds in northern Wisconsin*. Report submitted by the Lake Superior Research Institute, UW-Superior, to Wisconsin Department of Natural Resources, Bureau of Endangered Resources, Madison.
- Schrank, A.J., S.C. Resh, W.J. Previant, and R.J. Chimner. 2015. Characterization and classification of vernal pool vegetation, soil, and amphibians of Pictured Rocks National Lakeshore. *American Midland Naturalist* 174:161–179.
- Schulte, L.A., and D.J. Mladenoff. 2001. The original U.S. public land survey records: Their use and limitations in reconstructing pre-European settlement vegetation. *Journal of Forestry* 99:5–10.
- Semlitsch, R.D., and J.R. Bodie. 1998. Are small isolated wetlands expendable? *Conservation Biology* 12:1129–1133.
- Silver, E.J., A.W. D'Amato, S. Fraver, B.J. Palik, and J.B. Bradford. 2013. Structure and development of old-growth, unmanaged second-growth, and extended rotation *Pinus resinosa* forests in Minnesota, USA. *Forest Ecology and Management* 291:110–118.
- Simard, A.J., and R.W. Blank. 1982. Fire history of a Michigan jack pine forest. *Michigan Academician* 15:59–71.
- Singer, D.K., S.T. Jackson, B.J. Madsen, and D.A. Wilcox. 1996. Differentiating climatic and successional influences on long-term development of a marsh. *Ecology* 77:1765–1778.
- Singer, M.T., and C.G. Lorimer. 1997. Crown release as a potential old-

- growth restoration approach in northern hardwoods. *Canadian Journal of Forest Research* 27:1222–1232.
- Skawinski, P.M. 2010. *Aquatic plants of Wisconsin: A photographic field guide to submerged and floating-leaf aquatic plants*. Self-published by the author at Lakeplants@yahoo.com.
- Skawinski, P.M. 2014. *Aquatic plants of the Upper Midwest: A photographic field guide to our underwater forests*. Second edition. Self-published by the author at Lakeplants@yahoo.com. Also available through University of Wisconsin Extension, <http://www.uwsp.edu/cnr-ap/UWEXLakes/Pages/resources/bookstore/APUM.aspx>.
- Southeastern Wisconsin Regional Planning Commission. 1997. *A regional natural areas and critical species habitat protection and management plan for southeastern Wisconsin*. Southeastern Wisconsin Regional Planning Commission, Planning Report No. 42, Waukesha, Wisconsin.
- Sparks, R. 1995. Need for ecosystem management of large rivers and their floodplains. *BioScience* 45(3):168–182.
- Stanturf, J.A., S.H. Schoenholtz, C.J. Schweitzer, and J.P. Shepard. 2001. Achieving restoration success: Myths in bottomland hardwood forests. *Restoration Ecology* 9:189–200.
- Stearns, F., and G.E. Likens. 2002. One hundred years of recovery of a pine forest in northern Wisconsin. *American Midland Naturalist* 148(1):2–19.
- Steele, K., and P. Hartman. 2015. *Ecological site description identification number 105XY001: Dolomite Colluvium Bluff Prairie*. U.S. Department of Agriculture, Natural Resources Conservation Service, St. Paul. 49 pp.
- Steele, K., and P. Hartman. 2015. *Ecological site description, identification number 105XY002: Sandstone Colluvium Bluff Prairie*. U.S. Department of Agriculture, Natural Resources Conservation Service, St. Paul. 49 pp.
- Steele, Y. 2012. Oak habitat page. In K. Kreitinger, Y. Steele, and A. Paulios, editors. *The Wisconsin All-Bird Conservation Plan*, Version 2.0, Wisconsin Bird Conservation Initiative, Wisconsin Department of Natural Resources, Madison, Wisconsin.
- Stewart, J., L. Wang, J. Lyons, J. Horwath, and R. Bannerman. 2001. Influence of watershed, riparian corridor, and reach scale characteristics on aquatic biota in agricultural watersheds. *Journal of the American Water Resources Association* 37(6):1475–1487. doi:10.1111/j.1752-1688.2001.tb03654.x.
- Stocks, B.J. 1989. Fire behavior in mature jack pine. *Canadian Journal of Forest Research* 19:783–790.
- Stout, A.B. 1946. The bur oak openings of southern Wisconsin. *Transactions of the Wisconsin Academy of Science, Arts and Letters* 36:141–161.
- Strayer, D.L., and S.E.G. Findlay. 2010. Ecology of freshwater shore-zones. *Aquatic Sciences* 72:127–163.
- Swanson, M.E., J.L. Franklin, R.L. Beschta, C.M. Cristofulli, D.A. DelaSala, R.L. Hutto, D.B. Lindenmayer, and F.J. Swanson. 2011. The forgotten stage of forest succession: Early-successional ecosystems on forest sites. *Frontiers in Ecology and the Environment* 9(2):117–125.
- Swindale, D., and J. Curtis. 1957. Phytosociology of the larger submerged plants in Wisconsin lakes. *Ecology* 38:397–407.
- Tanner, J.T., and P.B. Hamel. 2001. A long-term view of old-growth deciduous forests. Pages 106–109 in P.B. Hamel and T.L. Foti, editors. *Bottomland hardwoods of the Mississippi Alluvial Valley: Characteristics and management of natural function, structure, and composition*. U.S. Forest Service, General Technical Report SRS-42, Asheville, North Carolina. 109 pp.
- Theler, J. 1997. The modern terrestrial gastropod (land snail) fauna of western Wisconsin hill prairies. *Nautilus* 110(4):111–121.
- The Nature Conservancy. 1997. *A classification framework for freshwater communities: Proceedings of The Nature Conservancy's aquatic community classification workshop*. The Nature Conservancy Great Lakes Program Office, Chicago.
- Thomson, J.W. 1940. Relic prairie areas in central Wisconsin. *Ecological Monographs* 10(4):685–717.
- Turner, M.G., S.E. Gergel, M.D. Dixon, and J.R. Miller. 2004. Distribution and abundance of trees in the floodplain forests of the Wisconsin River: Environmental influences at different scales. *Journal of Vegetation Science* 15:729–738.
- Tyrrell, L.E., and T.R. Crow. 1994. Dynamics of dead wood in old-growth hemlock-hardwood forests of northern Wisconsin and northern Michigan. *Canadian Journal of Forest Research* 24:1672–1683.
- Tyrrell, L.E., and T.R. Crow. 1994. Structural characteristics of old-growth hemlock-hardwood forests in relation to age. *Ecology* 75(2):370–386.
- Van Deelen, T.R. 1999. Deer-cedar interactions during a period of mild winters: Implications for conservation of swamp deer yards in the Great Lakes region. *Natural Areas Journal* 19:263–265.
- Van der Valk, A.G., T.L. Brenholm, and E. Gordon. 1999. The restoration of sedge meadows: Seed viability, seed germination requirements and seedling growth of *Carex* species. *Wetlands* 19:756–764.
- Vernier, L.A., and J.L. Pearce. 2005. Boreal bird community response to jack pine forest succession. *Forest Ecology and Management* 217:19–36.
- Verry, E.S., J.W. Hornbeck, and C.A. Dolloff, editors. 2000. *Riparian management in forests of the continental United States*. Lewis Publishers, CRC Press, Boca Raton, Florida. 432 pp.
- Vitt, D.H., H. Crum, and J.A. Snider. 1975. The vertical zonation of Sphagnum species in hummock-hollow complexes in northern Michigan. *Michigan Botanist* 14(4):190–200.
- Vitt, D.H., and N.B. Slack. 1984. Niche diversification of Sphagnum relative to environmental factors in northern Minnesota peatlands. *Canadian Journal of Botany* 62:1409–1430.
- Vogl, R.J. 1964. The effects of fire on a muskeg in northern Wisconsin. *Journal of Wildlife Management* 28(2):317–329.
- Vogl, R.J. 1964. The effects of fire on the vegetational composition of bracken grasslands. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 53:67–82.
- Vogl, R.J. 1970. Fire and northern Wisconsin pine barrens. Pages 175–209 in *Proceedings of the 10th annual Tall Timbers Fire Ecology Conference: a quest for ecological understanding*. Tall Timbers Research, Inc., Tallahassee, Florida.
- Vora, R.S. 1993. Moquah barrens: Pine barrens restoration experiment initiated in the Chequamegon National Forest. *Restoration and Management Notes* 11(1):39–44.
- Walker, J.F., P.C. Hanson, and G.J. Hunt. 2013. Hydrologic and lake quality modeling. Pages 21–59 in M.W. Meyer, J.F. Walker, K.P. Kenow, P.W. Rasmussen, P.J. Garrison, P.C. Hanson, and R.J. Hunt. *Potential effects of climate change on inland glacial lakes and implications for lake-dependent biota*. Focus on Energy, Upper Midwest Environmental Sciences Center, Environmental and Economic Research and Development Program, Final Report, Madison.
- Wang, L., J. Lyons, P. Kanehl, and R. Gatti. 1997. Influences of watershed land use on habitat quality and biotic integrity in Wisconsin streams. *Fisheries* 22(6):6–12.
- Wang, L., J. Lyons, P. Kanehl, and R. Bannerman. 2001. Impacts of urbanization on stream habitat and fish across multiple spatial scales. *Environmental Management* 28:255–266.
- Waller, D.M., and T.P. Rooney, editors. 2008. *The vanishing present: Wisconsin's changing lands, waters, and wildlife*. University of Chicago Press, Chicago. 507 pp.
- Ward, J.V. 1998. Riverine landscapes: Biodiversity patterns, disturbance regimes, and aquatic conservation. *Biological Conservation* 83:269–278.
- Weigel, B.M. 2003. Development of stream macroinvertebrate models that predict watershed and local stressors in Wisconsin. *Journal of the North American Benthological Society* 22:123–144.
- Weitzel, R.E., M.L. Khoury, P. Gagnon, D. Grossman, and J. Higgins. 2003. *Conservation priorities for freshwater biodiversity in the Upper*

- Mississippi River basin*. NatureServe and The Nature Conservancy, Arlington, Virginia.
- Werner, K.J., and J. Zedler. 2002. How sedge meadow soils, microtopography, and vegetation respond to sedimentation. *Wetlands* 22:481–466.
- West, P., and J. Welsh. 1998. *Characterization of unglaciated quartzite bedrock glades in the Baraboo Hills of Wisconsin*. The Nature Conservancy, Wisconsin Field Office, Madison. 19 pp.
- Wetmore, C.M. 1990. Lichens of Apostle Islands National Lakeshore. *Michigan Botanist* 29:65–73.
- Wetter, M.A., T.S. Cochrane, M.R. Black, H.I. Iltis, and P.E. Berry. 2001. *Checklist of the vascular plants of Wisconsin*. Wisconsin Department of Natural Resources, Technical Bulletin 192, Madison. 259 pp.
- Wetzel, R.G. 2001. *Limnology: Lake and river ecosystems*. Third edition. Academic Press, San Diego, California.
- White, A.S. 1986. *Prescribed burning for oak savanna restoration in central Minnesota*. U.S. Forest Service, North Central Forest Experiment Station, Research Paper NC-266, St. Paul. 12 pp.
- White, D.L., and F.T. Lloyd. 1998. *An old-growth definition for dry and dry-mesic oak-pine forests*. U.S. Forest Service, Southern Research Station, General Technical Report SRS-23, Bent Creek, North Carolina.
- White, K.L. 1965. Shrub-carrs of southeastern Wisconsin. *Ecology* 46(3):286–304.
- White, M.A., and D.J. Mladenoff. 1994. Old-growth forest landscape transitions from pre-European settlement to present. *Landscape Ecology* 9:191–205.
- Wiegmann, S.M., and D.M. Waller. 2006. Biotic homogenization in forest understories: Identity and traits of historical “winners” and “losers.” *Biological Conservation* 129:109–123.
- Wiik, E., H. Bennion, C.D. Sayer, T.A. Davidson, S.J., Clarke, S. McGowan, S. Prentice, G.L. Simpson, and L. Stone. 2015. The coming and going of a marl lake: Multi-indicator paleolimnology reveals abrupt ecological change and alternative views of reference conditions. *Frontiers in Ecological Evolution* 3:82.
- Wiik, E., H. Bennion, C.D. Sayer, and N.J. Wilby. 2013. Chemical and biological responses of marl lakes to eutrophication. *Freshwater Review* 6:35–62. doi:10.1608/FRJ-6.2.630.
- Wilcox, D.A. 1995. Wetland and aquatic macrophytes as indicators of anthropogenic hydrologic disturbance. *Natural Areas Journal* 15:240–48.
- Williamson, L.S. L.A. Dlutkowski, and A.P. McCommon Soltis, editors. 1999. *Proceedings of the Wild Rice Research and Management Conference 7–8 July, 1999, Carlton, Minnesota*. Great Lakes Indian Fish and Wildlife Commission, Odanah, Wisconsin.
- Will-Wolf, S., and F. Stearns. 1999. Dry soil oak savanna in the Great Lakes region. Pages 135–154 in R.C. Anderson, J.S. Fralish, and J.M. Baskin, editors. *Savannas, barrens, and rock outcrop plant communities of North America*. Cambridge University Press, Cambridge, U.K. 480 pp.
- Wisconsin Department of Agriculture. 1930–1947. Wisconsin land economic inventory (Bordner surveys). The University of Wisconsin Digital Collections, Ecology and Natural Resources Collection, Madison. Available online at <https://uwdc.library.wisc.edu/collections/econatres/wilandinv/>.
- Wisconsin Department of Agriculture, Trade, and Consumer Protection. 2016. Wisconsin’s emerald ash borer information source. Website. Available online at <http://datcpservices.wisconsin.gov/eab/article.jsp?topicid=25>. Last update September 30, 2016.
- Wisconsin Department of Natural Resources. 2000. *Biotic inventory and analysis of the Wolf River basin: An interim report*. Wisconsin Department of Natural Resources, Bureau of Endangered Resources, Natural Heritage Inventory, Madison.
- Wisconsin Department of Natural Resource. 2001. *Wisconsin’s Northern State Forest Assessments: Community restoration and old growth on the Northern Highland-American Legion State Forest*. Wisconsin Department of Natural Resources, PUB-FR-139b. Madison. 185 pp.
- Wisconsin Department of Natural Resources. 2006. *Old-growth and old forests handbook*. Wisconsin Department of Natural Resources, Handbook 2480.5, Madison, Wisconsin.
- Wisconsin Department of Natural Resources. 2010. *Oak Savanna State Natural Area management guide (Oak Opening, Oak Woodland, Oak Barrens)*. Wisconsin Department of Natural Resources, State Natural Areas Handbook, Chapter 100.60, Madison.
- Wisconsin Department of Natural Resources. 2011. *Barrens State Natural Area Management Guide (Pine Barrens, Oak Barrens, Sand Barrens, and Bracken Grasslands)*. Wisconsin Department of Natural Resources, State Natural Areas Handbook, Chapter 100.61, Madison.
- Wisconsin Department of Natural Resources. 2011. *Silviculture and forest aesthetics handbook*, chapter 41, oak. Wisconsin Department of Natural Resources, Division of Forestry, Handbook 2431.5, Madison, Wisconsin. 95 pp.
- Wisconsin Department of Natural Resources. 2015. *2015–2025 Wisconsin Wildlife Action Plan*. Wisconsin Department of Natural Resources, PUB-NH-938, Madison.
- Wisconsin Department of Natural Resources. 2016. Emerald ash borer. Web page. Available online at <http://dnr.wi.gov/>, keywords “emerald ash borer.”
- Wisconsin Department of Natural Resources. 2016. *Silviculture and forest aesthetics handbook*, Chapter 33, jack pine. Wisconsin Department of Natural Resources, Division of Forestry, Handbook 2431.5, Madison.
- Wisconsin Department of Natural Resources. 2016. *Wisconsin Natural Heritage Working List*. Wisconsin Department of Natural Resources, Madison. Available online at <http://dnr.wi.gov/>, keywords “working list.”
- Wisconsin Geological and Natural History Survey. 2013. Website and maps for Wisconsin springs. Available online at <http://wgnhs.uwex.edu/water-environment/springs/> or <http://wgnhs.uwex.edu/>, “Water and Environment” link then “Springs” link.
- Wisconsin Initiative on Climate Change Impacts. 2009. Central Sands Hydrology Working Group web page. Available online at <http://www.wicci.wisc.edu/central-sands-hydrology-working-group.php>.
- Wisconsin Initiative on Climate Change. 2010. Water Resources Working Group report. Available online at <http://wicci.wisc.edu/report/Water-Resources.pdf>.
- Wisconsin Stopover Initiative. 2011. Identified stopover sites in the Great Lakes basins of Wisconsin. Website. Available online at <http://wisconsinbirds.org/migratory/sites.html>.
- Wood, E.M., A.M. Pidgeon, Feng Liu, and D.J. Mladenoff. 2012. Birds see the tree inside the forest: The potential impacts of changes in forest composition on songbirds during spring migration. *Forest Ecology and Management* 280:176–186.
- Woods, K.D., and M.B. Davis. 1987. Paleocology of range limits: Beech in the upper peninsula of Michigan. *Ecology* 70:681–696.
- Wright, H.E., B.A. Coffin, and N.E. Aaseng, eds. 1992. *The patterned peatlands of Minnesota*. University of Minnesota Press, Minneapolis.
- Zedler, P.H. 2003. Vernal pools and the concept of “isolated wetlands.” *Wetlands* 23:597–607.
- Ziegler, S.S. 1995. Relict eastern white pine (*Pinus strobus* L.) stands in southwestern Wisconsin. *American Midland Naturalist* 133:88–100.

FROM: Epstein, E.E. Natural communities, aquatic features, and selected habitats of Wisconsin. Chapter 7 in *The ecological landscapes of Wisconsin: An assessment of ecological resources and a guide to planning sustainable management*. Wisconsin Department of Natural Resources, PUB-SS-1131H 2017, Madison.